

SUPPLEMENT.

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

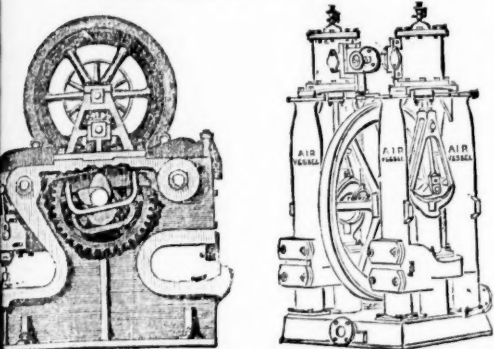
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2123.—VOL. XLVI

LONDON, SATURDAY, APRIL 29, 1876.

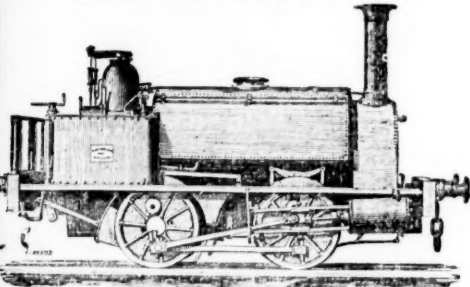
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BAR SHEARS.**
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FALCON WORKS,
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Honourable Mention—PARIS and VIENNA.



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materials and workmanship, always in progress, from 6 to 14 in. cylinders, four
or six wheels coupled, for cash, hire, or deferred payments.

For Excellence
Practical Success
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HAYLE FOUNDRY WHARF, NINE ELMS, LONDON,
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SECOND-HAND MINING MACHINERY FOR SALE.
IN FIRST-RATE CONDITION, AT MODERATE PRICES.
STEAM ENGINES; WINDING ENGINES; STAMPING ENGINES;
TEAM CAPSTANS; and CRUSHERS of various sizes. BOILERS, FIT
WORK of all descriptions, and all kinds of MATERIALS required for
MINING PURPOSES.

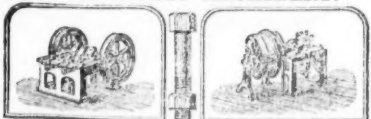
THE PATENT PNEUMATIC STAMPS
BE SEEN AT WORK at HAYLE FOUNDRY WHARF, NINE ELMS,
by previous application at either of the above addresses.

PATENTEES.



PATENTEES.

**SAM'L MARSDEN & SON,
MANCHESTER SCREW-BOLT WORKS**
London Road, MANCHESTER.
200 TONS OF BOLTS, NUTS, &c., ALWAYS IN STOCK,
MADE BY PATENT MACHINERY.



Will make 10 bolts per minute. Will make 60 nuts per minute.

Patentees and Makers of Special Machinery for Bolt,
Spike, and Nut Manufacturing.



60 of these Bolt and Spike-making Machines have been sold to Engineers,
Carriage and Wagon Builders, and Screw Bolt Manufacturers.
Nut making Machines will produce 60 to 80 nuts per minute, 1/4 to 3/8 in.
of hole, at a cost for labour of 1/4d. to 1d. per gross.
Lines to make up to 1 1/4 in. nuts are in progress of making.
The Machines working, apply as above.



PARIS,
BRONZE MEDAL, 1867.



ORDER OF THE CROWN OF PRUSSIA.



FALMOUTH,
SILVER MEDAL, 1867.

A DIPLOMA—HIGHEST OF ALL AWARDS— given by the
Geographical Congress, Paris, 1875—M. Favre, Contractor, having
exhibited the McKean Drill alone as the MODEL BORING MACHINE
for the ST. GOTHARD TUNNEL.

SILVER MEDAL of the Highland and West of Scotland
Agricultural Society, 1875—HIGHEST AWARD.

At the south end of the St. Gothard Tunnel, where

THE MCKEAN ROCK DRILLS

Are exclusively used, the advance made during eight consecu-
tive weeks, ending February 7, was 24'90, 27'60, 24'80, 26'10,
28'30, 27'10, 28'40, 28'70 metres. Total advance of south head-
ing during January was 121'30 metres, or 133 yards.

In a series of comparative trials made at the St. Gothard Tun-
nel, the McKean Rock Drill continued to work until the pres-
sure was reduced to one-half atmosphere (7 1/2 lbs.), showing
almost the entire motive force to be available for the blow
against the rock—a result of itself indicating many advantages.

The GREAT WESTERN RAILWAY has adopted these
Machines for the SEVERN TUNNEL; the LONDON AND
NORTH-WESTERN RAILWAY for the FESTINIOG TUN-
NEL; and the BRITISH GOVERNMENT for several Public
Works. A considerable number of Mining Companies are now
using them. Shafts and Galleries are driven at from three to
six times the speed of hand labour, according to the size and
number of machines employed, and with important saving in
cost. The ratio of advantage over hand labour is greatest
where the rock is hardest.

These Machines possess many advantages, which give them
a value unapproached by any other system of Boring Machine.

THE MCKEAN ROCK DRILL IS ATTAINING GENERAL
USE THROUGHOUT THE WORLD FOR MINING, TUN-
NELLING, QUARRYING, AND SUB-MARINE BORING.

The MCKEAN ROCK DRILLS are the most powerful—the
most portable—the most durable—the most compact—of the
best mechanical device. They contain the fewest parts—have
no weak parts—act without SHOCK upon any of the operat-
ing parts—work with a lower pressure than any other Rock
Drill—may be worked at a higher pressure than any other
—may be run with safety to FIFTEEN HUNDRED STROKES
PER MINUTE—do not require a mechanic to work them—are
the smallest, shortest, and lightest of all machines—will give
the longest feed without change of tool—work with long or
short stroke at pleasure of operator.

The SAME Machine may be used for sinking, drifting, or
open work. Their working parts are best protected against
grit and accidents. The various methods of mounting them
are the most efficient.

N.B.—Correspondents should state particulars as to
character of work in hand in writing us for information,
on receipt of which a special definite answer, with
reference to our full illustrated catalogue, will be sent.

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IRON, AND FLEXIBLE TUBING.

The McKean Drill may be seen in operation daily in London.

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MINERS' PICKS, with interchangeable Steel Points.
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Ornamental Castings, &c. £130 per ton
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Bushes and Bearings, Fans, &c. £145 per ton
Special Phosphor Bronze Bearing Metal £120 per ton
CASTINGS, Wire Ropes, Tuyeres, &c., of all descriptions
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**PATENT SELF-ACTING MINERAL
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(LIMITED).

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IMPORTANT NOTICE TO MINE PROPRIETORS.

MR. GEORGE GREEN, ENGINEER, ABERYSTWTH,
SUPPLIES MACHINES under the above Company's Patents for
DRESSING all METALLIC ORES. Dressing-floors having these Machines pos-
sess the following advantages:—

- 1.—THEY ARE CHEAPER THAN ANY OTHER KIND IN FIRST OUTLAY.
- 2.—ONLY ABOUT ONE-FOURTH OF THE SPACE USUALLY OCCUPIED
BY DRESSING-FLOORS IS REQUIRED.
- 3.—FROM 60 TO 70 PER CENT. OF THE LABOUR IN DRESSING, AND
FROM 5 TO 10 PER CENT. OF ORE OTHERWISE LOST, IS SAVED.
- 4.—THEY ARE THE ONLY MACHINES THAT MAKE THE ORE CLEAN
FOR MARKET AT ONE OPERATION.

They have been supplied to some of the principal mines in the United Kingdom
and abroad—viz.,

The Greenside Mines, Patterdale Cumberland; London Lead Company's Mines
Darlington, Colberry, Nanthead, and Bollyhope; the Stonecroft and Greyside
Mines, Hexham, Northumberland; Wanlockhead Mines, Abington, Scotland (the
Duke of Buccleuch's); Bewick Partners, Haydon Bridge; the Old Darren, Esclair-
mwyn, and Ystumtuen Mines, in Cardiganshire; Mr. Beaumont's W.B. Mines,
Darlington; also Mr. Sewell, for Argenteous Copper Mines, Peru; the Brats-
berg Copper Mines, Norway, and Mines in Italy, Germany, United States of
America, and Australia, from all of whom certificates of the complete efficiency of
the system can be had.

WASTE HEAPS, consisting of refuse chads and skippings of a
former washing, containing a mixture of lead, blende, and sulphur,
DRESSED TO A PROFIT.

Mr. BAINBRIDGE, C.E., of the London Company's Mines, Middleton
in Teesdale, by Darlington, writing on the 20th March, 1876, says—"The yearly
profit on our Nanthead waste heaps amounted last year to £600, besides the ma-
chinery being occupied for some months in dressing ore stuff from the mines. Of
course, if it had been wholly engaged in dressing wastes our returns would have
been greater; but it is giving us every satisfaction, and bringing the waste heaps
into profitable use, which would otherwise remain dormant."

Mr. T. B. STEWART, Manager of the Duke of Buccleuch's Mines,
Wanlockhead, Abington, N.B., writing on 20th March, 1876, says—"I have much
pleasure in stating that a full and superior set of your Ore Dressing Machinery has
been at work at these mines for fully a month, and each day as the moving parts
become smoother, and those in charge understand the working of the machinery
better, it gives increasing satisfaction, the ore being dressed more quickly, cheaply,
and satisfactorily than by any other method."

Mr. BAINBRIDGE, speaking of machinery supplied Colberry Mines,
says—"Your machinery saves fully one-half on old wages, and vastly more on the
wages we have now to pay. Over and above the saving in cost is the saving in ore,
which is not much short of 10 per cent."

GREENSIDE MINE COMPANY, Patterdale, near Penrith, say—"The
separation which they make is complete."

Mr. MONTAGUE BEALE says—"It will separate ore, however close
the mechanical mixture, in such a way as no other machines can do."

Mr. C. DODSWORTH says—"It is the very best for the purpose,
and will do for any kind of metallic ores—the very thing so long needed for dress-
ing floors."

Drawings, specifications, and estimates will be forwarded on application to—
GEORGE GREEN, M.E., ABERYSTWTH, SOUTH WALES.



THE "KAINOTOMON" ROCK DRILL,

The SIMPLEST, CHEAPEST, and BEST Machine in the World for SINKING, MINING, and QUARRYING,



It has been selected by the Admiralty for their works, and is extensively used at the principal Mines, Collieries, and Quarries of Great Britain, and the Continent of Europe.

"To this invention, which appears to possess several advantages over the machines previously exhibited at Falmouth, the Judges are unanimous in awarding a first-class silver medal" (the highest award).—*Report of the Judges at the Royal Cornwall Polytechnic Society's Exhibition, 1873.*

"The boring machine works splendidly."—W. TORRANCE: *Mid-Caldor.*

"For simplicity, compactness, and performance of work, your drill excels all others."—JOHN MAIN: *Crossfield Ironworks.*

"Under the most difficult circumstances, they give every satisfaction."—G. GREY: *Montreal Iron Mines, Cumberland.*

"The simplest and best boring machine."—Capt. WASLEY's letter to the *Mining Journal*, Oct. 18, 1873.

"It gives every satisfaction."—W. E. WALKER: *Lord Leconfield's Iron Mines.*

"The rock-drill I bought of you seven months ago has given me entire satisfaction, and I am convinced that the 'Kainotomon' is the best rock-drill in the market."—P. MCGINNIS: *Strabane.*

"I am quite satisfied with the working of it. For sinking pits it is a first-rate invention; I can do as much boring with it myself as six men can do by hand."—S. JENKINS: *Abertillery.*



The advantages over other Rock-boring Machines claimed for the "Kainotomon" are—

- 1.—It is much shorter.
- 2.—It is much lighter, and more readily removed from place to place.
- 3.—It requires the turning of ONLY ONE, instead of a number, of set screws, to fix it in position at any angle.
- 4.—It may be fed 3 inches out of stroke, without stopping the working of the drill, an invaluable advantage.
- 5.—It is not liable to derangement.
- 6.—It has not one-third the number of parts in its construction.
- 7.—All stuffing-boxes and parts requiring adjustment are dispensed with.
- 8.—It is so simple in its construction that any ordinary labourer or miner can drive it, simply having to turn on the motive power and feed the drill.
- 9.—The rotation is compulsory, and regular.
- 10.—40 lbs. pressure only is required to work it.
- 11.—A saving of over 50 per cent. in iron and flexible piping.

"THE ECONOMIC" COAL-CUTTERS, AIR COMPRESSORS, BOILERS, &c.

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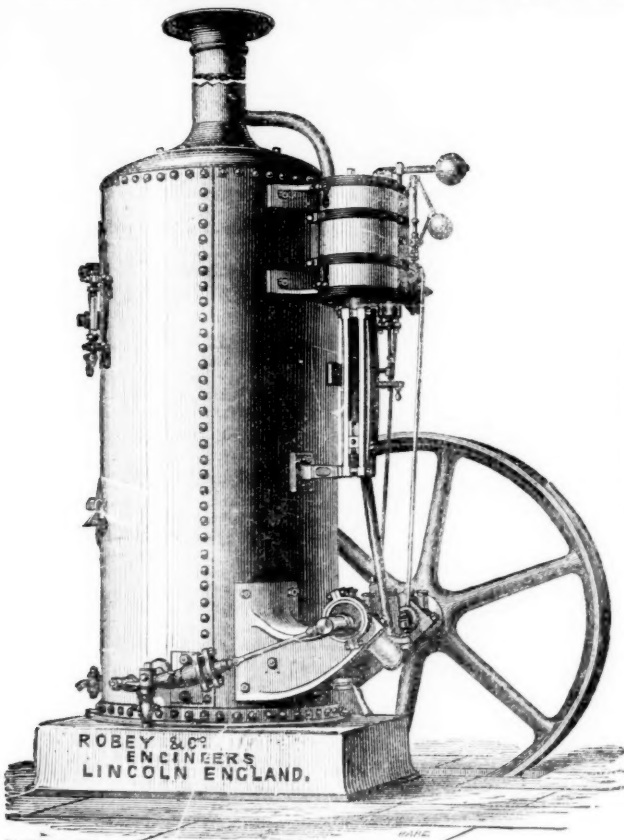
Patent No. 4136

Dated 16th December, 1873.

Patent No. 4150

Dated 17th December, 1873.

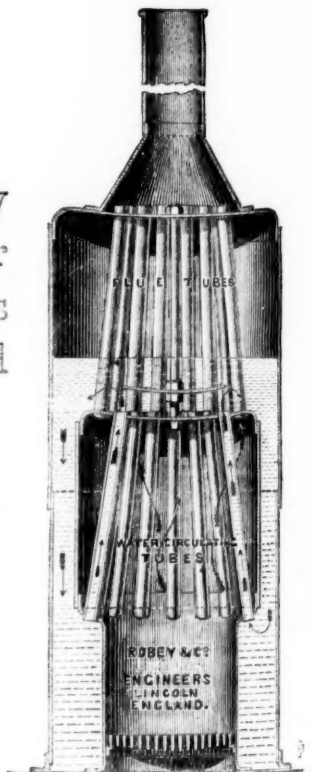
IMPROVED VERTICAL STEAM ENGINES AND PATENT BOILER COMBINED.



The Illustrations show one of Robey and Co.'s improved vertical Engines.

All these engines are supplied with Robey and Co.'s new patent vertical boiler, as per section illustrated, which has among others the following advantages over all vertical boilers yet produced:

PERFECT CIRCULATION OF THE WATER
SEPARATION OF THE SEDIMENT.
GREAT DURABILITY.
GREAT ECONOMY IN FUEL.



PRICES AND FULL PARTICULARS ON APPLICATION TO THE SOLE MANUFACTURERS:—

ROBEY AND CO.,

PERSEVERANCE IRONWORKS, LINCOLN, ENGLAND.

CAUTION.—Notice is hereby given, that any person infringing the above Patents will be forthwith proceeded against.

CONCENTRATION.

"FRUE VANNING MACHINE,"

THE MOST PERFECT WASHING APPLIANCE
FOR FINE MATERIAL, will OPERATE on the FINEST SLIMES
Self discharging. Will separate Lead, Zinc, Tin, Copper, and Silver Ores cleanly at one operation. Capacity, 8 tons per day.
Descriptive circular, with drawing, post free on application.
For terms, references, and particulars, apply to—

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FLEET STREET, LONDON, E.C.
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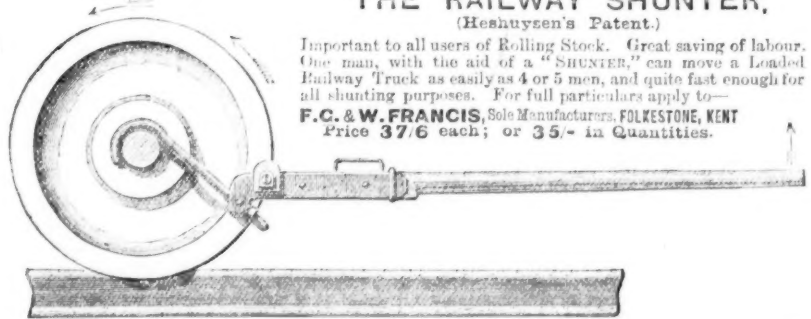
THE GREAT ADVERTISING MEDIUM FOR WALES.
THE SOUTH WALES EVENING TELEGRAM
(DAILY), and
SOUTH WALES GAZETTE
(WEEKLY), established 1857,
the largest and most widely circulated papers in Monmouthshire and South Wales
CHIEF OFFICES—NEWPORT, MON.; and at CARDIFF.

The "Evening Telegram" is published daily, the first edition at Three P.M., the second edition at Five P.M. On Friday, the "Telegram" is combined with the "South Wales Weekly Gazette," and advertisements ordered for not less than six consecutive insertions will be inserted at a uniform charge in both papers.
P.O.O. and cheques payable to Henry Russell Evans, 14, Commercial-street, Newport, Monmouthshire.

THE RAILWAY SHUNTER,

(Heshuysen's Patent.)

Important to all users of Rolling Stock. Great saving of labour. One man, with the aid of a "SHUNTER," can move a Loaded Railway Truck as easily as 4 or 5 men, and quite fast enough for all shunting purposes. For full particulars apply to—
F.C. & W. FRANCIS, Sole Manufacturers, FOLKESTONE, KENT
Price 37/6 each; or 35/- in Quantities.



YEADON AND CO., COLLIERY & MINING ENGINEERS,

Manufacturers of WINDING, HAULING, and PUMPING ENGINES, Boilers and Fittings, Steam Piping, Donkey Pumps, Lift Pumps, Perforated Clay and Mortar Mills, Brick Presses, Pug Mills, Round and Flat Rope, Pit-head Pulleys, Wrought-iron Head Gear, ROOFS and GIRDERS, Kibbles, ONE, TWO, and THREE-DECK CAGES, COAL TIPPING and SCREENING APPARATUS, VENTILATING FANS, TUBBING, GIRDERS, PILLARS, POINT PLATES. Steam or other Cranes, Crabs and Windlasses, Machines for Cutting Stone, &c.

CROWN POINT FOUNDRY, LEEDS.

LONDON AGENTS, — RODDA AND HAUGHTON, No. 122, CANNON STREET, E.C.

THE AMMONIA PROCESS.

It is, clear, therefore, that although the primary cost of platinum and copper plant is apparently costly, in reality its indestructibility and the trifling waste incident to its working render it an exceedingly economical one. The length of time the copper and the tanks will last depends, in a great measure, upon the amount of silver in the stuff treated. If the ore contains (say) 4 ozs. of silver to the ton of stuff, and 50 tons a-day be worked, the copper of the tank should theoretically last 176 working days, or (say) six months. Practically, however, but little more than half this time suffices to dissolve the copper. New plates can be introduced in a few hours, and the process goes on as before, the dissolved copper plates, and

I would remind British consumers that all this tin is not going to the London market direct. Shipments to California, China, and New Zealand have been constant and steady during the whole of the past year. The actual figures I trust to be able to give shortly. No doubt the effect is the same, as these markets looked to Holland or London for this supply heretofore. However, the result of the past year's figures is that we supply one-fourth of the whole tin of the world. It has also demonstrated that we can supply the article at a less rate or cost than any other place in the world, and a reduction of 50 per cent. in price has barely affected our supply. If to these facts be added that there is over six months' stock in London, and that

The eruptive rocks, at the junction of which with the metamor-

phosed rocks the ore formations have originated, are extremely varied in appearance and texture, and it is often difficult to name them. There can, however, be no doubt but that they are the result of the same upheaval. The most prominent are syenite and granite porphyry, hornblende rock, diorite, and quartzite.

Since the annihilation of mining industry by the wanton destruction of the works in 1735 little has been done to recuscitate mining in Serbia during the 60 years of her independence. Her rulers have not possessed the knowledge to work the mines themselves, and their policy has not permitted them to encourage the introduction of foreign capital. At present only four mines are worked for metallic minerals, and three for lignite and coal, but much prospecting is going on. Of these mines two are worked by the Government on a very small scale.

The following are the principal mining districts:—

MAIDENPEK GROUP is worked for copper ores, which are smelted on the spot.

CUCHAINA MINES, from which are extracted auriferous and argentiferous ores of lead and zinc.

DELIJOWAN GROUP, much worked in ancient times for lead and copper, &c., but at present idle.

ROPAUNIK GROUP, on the Turkish frontier.

RUPNIK DISTRICT, once celebrated for the production of lead ores containing large percentages of the precious metals.

PONGORA MINES, containing ores of antimony and copper, are worked by an English company.

KRUPANY LEAD MINES, worked by the Servian Government.

There are also many other scattered points where ores are known to exist from the numerous heaps of furnace slags which dot the valleys.

The gold washings of the Pek river were at some time important, if one may judge from the immense mounds of debris scattered for many miles along its broad valley.

I do not intend to occupy your valuable space by a dull and long-winded relation of all the mining districts, which would involve useless repetitions, but propose to confine myself to the description of the most important and best known deposits. From the similarity of the containing rocks these may be presumed to be typical of the rest.

The Maidenpek Copper Mines and the Cuchaina Lead Mines are at present, as they have been in former times, the most important works in Serbia, and as they are types of two modes of deposition I shall in my next letter proceed to describe them.

EMPRESSARIO.

[To be continued in next week's Mining Journal.]

MINING IN NEWFOUNDLAND.

SIR.—Latest advices from Tilt Cove report the discovery of a lode 2 ft. wide, of high percentage nickel, on the property of Messrs. Bennett and Mackay, whose copper mine is now employing about 50 hands. At Betts Cove Copper Mine, the property of Messrs. Francis Eilershausen and Co., there are about 300 men employed and four furnaces. Several exploring parties are preparing for this field, and will start as soon as the weather becomes suitable.

Halifax, N.S., April 18.

ACADIENSIS.

DYNAMITE EXPLOSION.

SIR.—I noticed a paragraph in last week's Journal giving some account of experiments at the Dynamite Company's works, from which they endeavoured to show that there was no danger in the use and transport of dynamite. It is all very well for the officials to try to persuade the public there is no danger in this most dangerous of explosives. What will they say about the dreadful explosion in Wales last week, where so many valuable lives were lost? I have noticed that when an accident takes place with dynamite there is no reference made to it, nor do those connected with it point out the dangers attending its use. It is the duty of the Dynamite Company to have printed instructions, pointing out the danger, and warning consumers against those dangers. Instead of this, we hear of one accident after another, and many valuable lives lost from want of that caution necessary to prevent such dreadful accidents, and we are told that they occur through carelessness. No doubt this may be true to a certain extent; and, admitting the truth of it, employers ought to be all the more determined to select the safest blasting-powder, and such as can be put into the hands of men who appear to be regardless of their lives, because, as was justly remarked by one of your correspondents, every employer is morally responsible for the health and safety of his workpeople, whatever he may think to the contrary. The excellent article from the pen of one of your correspondents on the Explosive of the Future demands the attention of consumers of blasting-powder. I have seen both dynamite and cotton powder used; a wooden rammer issued with dynamite, and an iron hammer is used with cotton powder, thus proving its safety. The Cotton Powder Company say there is no danger with an iron rammer, that it contains no nitroglycerine, that there is no danger under any circumstances until the cap or detonator is in. If such is the case, it is quite evident it will be the explosive of the future, and ought to get a fair trial. The present cartridge of the Cotton Powder Company is evidently a great improvement on the old cartridge; and, being perfectly waterproof, water tamping will save much time; and, however long the powder is in the water, so long as the cap is kept dry, it will explode. It appears to me that the cotton powder in its compressed state could not ignite if placed in the position of the dynamite in the tunnel; and even if it did, from the account given of it by the Cotton Powder Company, it could not explode, having no nitroglycerine mixed with it. It is a pity the Cotton Powder Company connected the word "cotton" with it, as many mistake it for gun-cotton.

J. S.

ECONOMIC GENERATION OF STEAM.

SIR.—A description was published a few weeks since in the *Mining Journal* of a method of jacketing and covering steam-boilers, which appears to me to be particularly applicable to the boilers used at mines, as these are frequently so much exposed that the loss of heat must be enormous. I am, of course, aware that many mine boilers are well coated with various compositions to prevent the radiation of heat, but as the outside of the coating is exposed, the useful effect is much reduced; so much, indeed, that many engineers doubt the utility of jacketing altogether. But in the invention which you described arrangements certainly seem to have been made for utilising every particle of heat, whilst the cost of applying it cannot be great unless the inventor charges an exorbitant royalty for its use. My reasons for admiring the arrangement you described are these, and although they may not be strictly orthodox in a scientific point of view, I believe many will consider them justifiable. In the first place, there is the jacketing cement, of which I forget how many inches thick, but I think you stated 3 in., and this is formed of a non-conductor, through which very little heat passes. Let us suppose, however, that 5 per cent. still escapes, there will still be room for improvement, and there would be the further disadvantage that the cold outside air would always be cooling down the coating, and thus keeping up the loss.

But to counteract this there is in the invention you described an iron envelope with a few inches of air space between it and the boiler coating. This, in the first place, keeps the coating from contact with the outside air, which is no doubt beneficial, but it has, in my opinion, another advantage which seems to have been overlooked. It may be assumed that the radiation of some heat must take place however good the boiler coating may be, and the question is how that heat can be recovered. Now, from your description it appears that Mr. Stone's invention recovers it most completely. The air for supporting combustion in the furnace is made to pass through the air space between the boiler coating and the envelope, so that practically the furnace is fed with warm air instead of cold, and although I do not know the scientific views entertained upon the point, it appears to me that less fuel must be consumed in giving the same amount of heat to the boiler. A certain proportion of the heating power of the fuel must, one would think, be consumed in heating up the cold air, which by this arrangement is warmed by heat that would otherwise be entirely wasted. I have seen no statement as to the proportion of economy, but your description is quite enough

to convince me that the invention would be worthy of adoption by many mines which are now consuming much more fuel than they can afford to pay for.

Chelmsford, April 25.

MINE ADVENTURER.

PATENT COTTON GUNPOWDER.

SIR.—I doubt not you fully recognise it as a duty to the mining public in your capacity of journalist to do all in your power to protect the lives of that most useful class who toil in the bowels of the earth, surrounded as they are by enough of peril in the ordinary course of their occupation, without having an extra element of danger introduced for their destruction in the shape of treacherous explosives. The lamentable loss of life in the tunnel at Cymmer, in South Wales, on Saturday last, as recorded in yesterday's papers, is but one more link added to a long chain of similar catastrophes, from which there can be no escape so long as dangerous explosives are in common use. I think, therefore, you would be doing the public a service were you to publish in your widely-diffused Journal the enclosed report of Prof. Attfield, showing how perfectly innocuous and free from accidental explosion is the Cotton Powder manufactured at Faversham.

I do not wish you to suppose this letter is written with the view of advertising our powder for our own interest. It is done in the interests of the public who should have before them the fact that there is such a commodity as a really safe explosive, which can be handled, transported, and stored without danger; and as Prof. Attfield's report shows this, I think the public ought to have the benefit of this knowledge, leaving it to them to profit by it or not as they may see fit.

THE MANAGING DIRECTOR.

Queen Anne's Gate, April 25.

Copy of a Report from Prof. ATTFIELD, F.R.S., Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain; Author of "Chemistry—General Medical and Pharmaceutical;" London Analyst to the Fire Insurance Offices, &c.

To the Goods Manager of the South Eastern Railway, Bricklayers' Arms Station, London.

SIR.—At your request, conveyed to me through Mr. S. J. Mackie, I have this day visited the Patent Cotton Gunpowder Company's Works (now the Cotton Powder Company, Limited), at Oare, near Faversham, for the purpose of satisfying you of the qualities and properties of their powder, especially with respect to its transport by railway. With this object, after some conversation with Mr. Mackie, I suggested a series of experiments on a considerable scale, and these I have now witnessed. They occupied four hours, were all carried out with the utmost openness and integrity, and quite satisfied me that this Patent Cotton Gunpowder is less dangerous to handle, transport, or store than common gunpowder. I will shortly describe a few of the experiments:—

1.—A mass of iron, weighing $\frac{1}{2}$ ton, was let fall from a height of 15 ft. on to a box containing 10 or 12 lbs. of powder. It did not ignite the powder.

2.—An unusually well made powder barrel, strongly hooped and headed, containing between 30 and 40 lbs. of the powder, in the form of cartridges of various sizes, was placed over some faggots saturated with tar, and a large bonfire kindled. In four minutes the cartridges ignited, and merely burned quietly for some 30 or 40 seconds. Every cartridge was entirely consumed without any explosion.

3.—A box, holding 10 or 12 lbs. of the powder, was next fired into from a rifle at a distance of about 20 yards. The bullet ignited the powder, which burnt rapidly but quietly away without explosion.

4.—A cartridge was placed in an open box containing 2 lbs. of common gunpowder, and the latter fired by a fuse. The cartridge was blown some yards, but not exploded. The same cartridge was afterwards fired by the usual means.

5.—Strong sparks of electricity were next passed through some of the Patent Powder without effect.

6.—Many blows of an iron hammer on an iron anvil failed to ignite portions of the powder, and when ignition was at last effected the adjacent portions of powder were merely blown on one side without being exploded.

7.—Concentrated acids (oil of vitriol and fuming nitric acid) were both successively and together poured on to portions of the powder without visible effect.

8.—Lastly, to show the power of this Patent Cotton Gunpowder when intentionally exploded by detonation a 12-in. balk of timber was shattered by four small cartridges; a fountain of water 80 or 100 ft. high was thrown up by the explosion of a floating box of the powder; and a hole in the marshes, 8 ft. across and 4 ft. deep, was instantly produced on exploding 1 lb. of the powder.

All these explosions of the Patent Powder were effected by certain detonators, specially made, I am informed, for the company. Some ordinary detonators failed to ignite the powder. The detonators, I am told, are never transported in the same vehicle as the powder. As to spontaneous explosions, I may say that, judging from statements confided to me respecting composition and details of preparation of the Patent Cotton Gunpowder, it is even less liable than ordinary gunpowder to this form of decomposition. The whole of the operations connected with the manufacture, manipulation, testing, &c., of this powder are carried on with all, and more than all, the precautions adopted at powder works.

JOHN ATTFIELD.

NOTE.—Upon this report, and the subsequent most careful consideration given to the subject by the railway authorities, the Cotton Powder has been admitted under Clearing House rules to transport by all the railways of the United Kingdom on the same terms as ordinary gunpowder.

THE NEW MANGANESE BRONZE.

SIR.—It is time that the immense importance which the recent discovery of manganese bronze may have upon the general metal industries of the country should be realised, seeing that the researches of the White Metal Company of Southwark and the extensive experiments of Colonel Younghusband, of the Royal Woolwich Gun Factories, have established beyond question or doubt that the new alloy may be considered to be twice as strong as brass, bronze, "white," and gun metal (and that it must, therefore, inevitably supersede these compounds) while compared to wrought-iron its strength is computed to be as 1000 to 500!

The best brass we may take as being composed of 80 parts of copper and 20 of zinc; bronze as composed of 90 parts of copper and 10 of zinc. But it is found that an addition of 1 to 2 per cent. of manganese (which does not increase the price) to either of these compounds, but especially the latter, not only marvellously improves the alloy, but gives us virtually a new metal. It is harder, it is tougher, it is more elastic; so much so, that while the best wrought-iron reaches its elastic limit under a strain of 10 tons, has a breaking strain of from 22 to 24 tons, and an elongation of from 10 to 15 per cent., a forged piece of manganese bronze bore a strain of 12 tons, a breaking strain of 30 tons, and an elongation of 207, and in some instances of even 355 per cent. It can be forged, rolled, and otherwise manipulated at a red-heat with an ease and readiness hitherto unknown; and the hardness, toughness, and elasticity appear to be easily varied, according to the mode of treatment and the proportion of manganese added. No better instance of this vast superiority can be given than that no metal or alloy could be found except phosphor-bronze—and to which manganese bronze is to be preferred—to bear the strain of the engines of the new vessel the *Shah* on their crank-bearings, and that the vessel was practically valueless until that alloy was tried, and which alone fulfilled all the requirements. There seems to be no doubt, therefore, that the new bronze will be used for all those purposes for which copper and its alloys have been hitherto employed; for who would use brass or bronze when they can get the new metal doubly enduring, and, therefore doubly as economical, for the same price? Thus, it will be required for all bearings for engines of every description, for slide valves, pistons, &c., for boiler tubes, for locomotives, for fire-boxes, for hydraulic press-cylinders, and all high-pressure pumps. However, it is a very handsome metal, more golden looking when polished, and retains its lustre much longer than brass.

The most remarkable suggestion which, however, has been made with regard to it is that manganese bronze should not only be used instead of copper for sheathing vessels, but that it will ultimately take the place of wrought iron and steel for plating our war-ships, its power of elongation being a great desideratum. Careful calculation proves that a bronze plate two-thirds of the thickness of wrought-iron can be manufactured for the same price, and gives us a stronger resisting power at a less weight, while a plate of the same thickness would be twice as invulnerable. Not only so, but a steel or other shot striking a manganese bronze plated ship would not split and crack and shatter the plate into a thousand pieces, to the imminent danger of those who are fighting it, but the shot would literally have to force its way, drilling a hole through the tough and elastic bronze, and which hole could be readily and effectually plugged. The same arguments apply in every point to the manufacture of cannons and guns of every description. And as gun-metal is really bronze, if these statements are true, all cannon ought at once to be made of the new metal. In fact, its uses seem perfectly illimitable. From Colonel Younghusband downwards, all agree as to the fineness and evenness of the texture and the perfect homogeneity of the metal; while it has also been observed that the contraction in diameter when elongated is perfectly symmetrical.

As this bronze, as we have seen, must contain (say) 88 per cent. of copper, 10 of tin, and 2 of manganese, it is utterly impossible to over-estimate the value which such a discovery implies to the mining industries of Devon and Cornwall, and which have been so long de-

pressed. A demand for this alloy—such as we may reasonably anticipate will, after a time, arise for it, both at home and abroad, from the infinity of uses to which it may be applied—will resuscitate the copper, tin, and manganese interests, the second of which is now in an almost ruinous condition from the low price of that metal.

April 25.

METALLURGIST.

LEICESTERSHIRE COAL FIELD.

SIR.—At the Whitwick New Sinking, on April 21, the noted Thick coal was met with at 312 yards in depth. The winning of this seam at this pit has been looked forward to with great anticipation in the district, as proving the continuation of the Thick seam under the whole of the company's estate; its thickness continues the same, and its quality is very superior as a house and gas coal, which has greatly enhanced the value of the company's freehold property.

In the sinking operations great difficulties have been met with, the water-bearing strata continuing to a depth of 240 feet; the whole of the water has been beaten back by an improved system of coffering, and the sinking has been continued throughout, without the aid of expensive pumping machinery, which has never before been accomplished in the district in going through the same strata; 81 feet of greenstone have been sunk through, which had to be overcome by that powerful agent dynamite, which rendered certain and effective service. The whole of the workable seams of coal were met with in due course, together with vast deposits of ironstone, lying on the top or adjacent to the seams of hard coal, yielding very large quantities of superior quality, and, according to analysis, of great practical value in iron making.

The whole of the time occupied in sinking—i.e., the number of working days—on the bottom for 312 yards was 339 days. The company now having two shafts down to the Thick coal (called Whitwick deep bright main) are laying out large and substantial surface plant, so as to be able vigorously and energetically to develop their vast resources. As soon as the present work has been brought to an advanced stage the company intend sinking a large pit on the deep of their present pits, which will give a length for levels 2000 yards north and south, and 1600 yards to the west; at this pit it is proposed to work the two thick seams along with the ironstone. The ultimate output of the colliery, when in full working order, is expected to be very largely increased, having vast resources, great thickness of seams, being easily worked, and the mines free from water and lying in a central position, so as to facilitate the transit of the coal, which is in the highest request, and always commands a ready sale. The whole of the company's collieries are under the direction and supervision of their resident mining engineer, Jonathan Harrison, F.G.S., Coalville.

Coalville, April 24.

F. J. WYKES, Miners' Surveyor.

THE METALLIFEROUS MINES REGULATION ACT.

SIR.—I see by the Journal of Saturday that a writer attributes to the Metalliferous Mines Regulation Act an injurious effect on Cornish mining. I have long wondered that Cornwall did not complain before. It is one of the most useless emanations that ever proceeded from a legislative body, and no one, I think, knows this better than the Inspectors themselves. It is surprising that such a vexatious interference with an industry which could not be benefited by even much wiser legislation than is provided in that Act is permitted to continue in operation, to the annoyance of many and the benefit of none, unless, indeed, it be the officials employed. It appears to me most highly reprehensible that the public funds should continue to be expended to no purpose.

I have occasionally seen by the *Mining Journal*, and also the local papers, that some unfortunate individual has been summoned before the authorities for an alleged violation of an Act which in hundreds of cases is broken every day, and will continue to be broken as long as it is extant. The few and trivial cases which have been brought under the notice of the authorities are sufficient of themselves to show how little there is to complain of, and how utterly useless is the office of such inspectors. The few examples they have been able to make prove how trifling are the evils which beset the system they are commissioned to protect. With respect to ventilation, I remember a case of this kind being preferred against an agent some time since, as long as mines are mined some parts, with even the best attention, will occasionally be found insufficiently ventilated. Atmospheric changes affect the underground currents, and the air in mines ordinarily well ventilated is sometimes vitiated in this way, as well as from other natural causes. It is the proprietors' interest, as well as the workmen's, to provide the best ventilation possible, and Acts of Parliament relating thereto in respect of metalliferous mines amount to nothing, or less than that. An experienced miner knows better how to conduct the operations of a mine under his direction than all the members of both Houses of Parliament, aided by the combined wisdom of the Inspectors, and no special legislation or supervision is necessary, if even it cost the country nothing to provide, and the common law code of this country, if properly appealed to, is quite sufficient to protect all interests. I think the obnoxious Act has been in operation long enough to work its own universal condemnation, and bespeak its repeal. It is a tax upon the public exchequer productive of little, if anything, besides useless annoyances, and would be impertinent if not invested with legal sanction. The office appears very much like that of the county analyst, who candidly admits he has no vocation in that line. Could not the Inspector of mines with equal truth make a similar admission. I believe he could.

MINING ENGINEER.

BORING MACHINERY IN CORNISH MINES.

SIR.—There are many correspondents of the *Mining Journal* who charge Cornish miners with apathy and inability to appreciate improvements, because they are disinclined to introduce the rock-drill instrument about as useless for ordinary mining operations as it is valuable for driving long adits, tunnels, and other large works. The high position among miners which Cornish miners attain in foreign countries is an evidence that they are not behind others, and with regard to the use of rock-drills the mere statement of the facts of the case would show that it would in most instances be undesirable to use them. The lowest price at which a rock-drill has been advertised in the *Journal* is 55*l.*, and this was stated even by the inventor to be a machine which, although equally good in principle, was likely in use to prove less economic than the better qualities which he manufactured at twice or thrice the price. Now, I will for the sake of argument assume that a 35*l.* drill is knocked out with 70 fms. driving, a 90*l.* drill with 180 fms. driving, and so on, although all who have used rock-drills know full well that not one extant will do anything like that amount of work, and I will find that the cost of the drill itself is 10*s.* per fathom. But the cost of the drill itself forms but a small proportion of the cost of keeping a rock-drill at work; from 500*l.* to 800*l.* must be paid for the compressing machinery and accessories, and in most cases extra men must be employed to attend to the air compression, so that at least 2*l.* per fathom may be put down as the total cost of running the drill. Now, if there were 100 fms. of ground to be removed in one level, the economy per fathom would compensate for the first cost, but where, perhaps, 5 fms. has to be worked in one place and 2 fms. in another, the case is quite different; in fact, where the driving is in one or other direction, or in one or other place, is dependent upon the changes in the character and appearance of the ground no saving is effected by the use of the rock-drill.

The economy of the drill is seen when the sole object in view is the reaching of a certain point for some especial purpose. Suppose, for example, there is reasonable certainty of a known rich lode existing at a depth of 100 fms. in a property adjoining that in which it is already worked, much economy would be effected by using rock-drills in sinking a good shaft 100 fms., and then putting out (say) a couple of main levels of 100 fms. each, as by that means a large number of men could be enabled to raise ore in the shortest possible time. But in these cases none are more ready than Cornishmen to recognise the advantages of the drill, and where the all important requisite—money—is forthcoming they readily apply it. Take, for example, the mine drainage enterprise in Wales, in which Messrs. John Taylor and Sons are engaged; their first object is to get a good drill in order to drive forward the work as fast as possi-

ble, and I do not hesitate to say that it will be found that they can make as rapid progress as Mr. Favre has made at the St. Gothard Tunnel, and that they will show that mining at the rate of 2 fms. per day can be as well accomplished in Wales as in Switzerland. But here we have a drivage to be made regardless of the minerals met with, the object being to drain the whole of the mines of the district, and as the company undertaking the drainage have secured a certain return by Act of Parliament, there will, of course, be an abundance of funds. For ability to organise such an enterprise I am sure it would be difficult to surpass Messrs. John Taylor and Son, and the driving of the levels contemplated form a favourable opportunity for having the comparative merits of the several drills fairly tested. Messrs. Taylor might fix a price per fathom, and then permit each of the several drills to be used for 10 fms., guaranteeing the order for the drill that performed the 10 fms. in the shortest time with least wear and tear. By this means they would confer a lasting benefit on the whole mining community.

MINING IN CORNWALL—VALUABLE DISCOVERY.

SIR.—It is gratifying to hear of any new discoveries in mining. In journeying from this town to Helston a few days ago, I happened to observe some new operations going on, and on enquiry I found that a rich copper lode had been struck the last few weeks, near the surface, of rather extraordinary size and prospects, near the Trevill surface, in the parish of Perranuthnoe. The mine, one of the men at work informed me, was called the New Caroline, and the lode was one of the champion and master lodes of the district, and a parallel lode to the very rich Neptune lode, discovered some years ago by the late Messrs. Gundry, of Goldsithney, which for some years made immense returns of the very richest quality copper ore. A few such discoveries will restore confidence in mining in Cornwall, as they are very much wanted. Trade, everybody says, is at present in a very dull state.

THE LEAD MINES OF DERBYSHIRE—No. V.

SIR.—Many of the waste heaps of calc-spar alluded to in our last have been picked and sorted over several times for the ore left in them. Much of this spar is also used as a substitute for gravel in making walks and drives, and a very good and ornamental substitute it is. The great white glistening heaps on the lofty hills and slopes of this county are seen for miles round, recalling the vast waste heaps of spar and carbonate of barytes at the Snailbeach Mine, in Shropshire, or the huge mound of white sand at the copper mine on Alderley Edge, both of which are visible at a distance of nearly 20 miles. In many parts of Derbyshire sulphate of baryta, locally termed cawk, is the common veinstuff, and many small mills have been built to grind it for paint and other purposes. We have never noticed the carbonate of barytes, but probably it occurs in a district so fertile in different minerals. The two most common varieties of fluor-spar found in the lead veins are the purple and the yellow. The beautiful purple fluor, locally termed Blue John, was found abundantly in the mines near Castleton at the beginning of this century. The supply now, we believe, is very small. It is fashioned into those beautiful vases, cups, &c., so well known to visitors at Buxton and Matlock. The yellow fluor was a common veinstuff in the once rich mines of Crich, at the southern extremity of the district, and we were told many years ago by one of the miners there that its appearance in a vein was an almost sure precursor of a good course of ore. This yellow fluor was used about a century ago as a flux for smelting the copper ore of the Ecton Mine in the Staffordshire smelting furnaces. With reference to the purple fluor-spar, mentioned above, we may remark that a fine vase of this material may be seen in the Museum in Jermyn-street. The most frequent ore of lead, as might be expected, is the sulphide of lead, or blue lead ore. It contains very little silver in this county, varying, we believe, from 2 to 6 ozs. per ton. The carbonate of lead, or white ore, is found in small quantities near Matlock and in other parts. Phosphate of lead, or green ore, was found in several mines near Winstar, and also in the Green Linnet Mine, near Brassington. Blende and calamine are raised in small quantities in various parts of the mineral field. Small specimens of copper ore are occasionally met with, especially near Matlock, but the only mine in which it has been commercially valuable is the Ecton. Although this mine is really in Staffordshire, yet it is so near the Derbyshire border, and so obviously in the same mining district, that it should not be passed over without a short notice. It is said to have been discovered by a Cornish miner about the year 1740, to have been worked for a few years by a company, and then to have been taken in hand by the Duke of Devonshire, the owner of the soil. To the Duke, between 1760 and 1800, it gave very large profits, popularly said to have been a quarter of a million; we cannot vouch for this, but have good reason to believe that in 1785, when past its best, the Ecton Mine was returning 60 tons of pure copper per month, worth about 1000 per ton, the ore being carted to Whiston, in Staffordshire, and smelted there. The depth of the mine is about 200 fms. below the adit, which came in at about 100 fms. It was drained by a powerful hydraulic, or water-pressure, engine, contained lead in its upper portion, then an immense deposit of yellow copper ore, and was left off in mudic. It was a pipe vein, going down like a bell, with many branches passing into the country rock; these branches were worked long after the great pipe was exhausted. About a mile north of the Ecton, the Dale Mine was worked on a similar, but smaller, pipe by a London company. It yielded fair quantities of lead and blende, but was not half tried, not having sufficient engine-power. To re-open and work this mine with ample capital would be a good speculation. Whether it would be possible to re-open the Ecton and sink deeper we cannot say; it would depend much on the state in which the shaft was left. There is no hydraulic-engine at present working in Derbyshire, but at the close of the last century there were two working near Youghave—one at the Bacon-close, and the other at the Crash-purse Mine. About 30 years ago the Messrs. Taylor had a very powerful one, with 24-in. pumps at the Alport Mines, near Youghave, but the water—that terrible opponent in Derbyshire—was too much for it.

MINING SHARES.

SIR.—As a shareholder in the Glyn Mine, I beg most respectfully to tender "A Cautious Man" my sincere thanks for his sympathetic and instructive letter in last week's Journal. I have no doubt "A Cautious Man" is what he subscribes himself, but I fear he has not, hitherto, been so cautious as he should have been. Not many weeks since this "Cautious Man," or one of his firm (for I may add here that there are a large company of them), sought very hard to make my acquaintance, and he very nearly succeeded, too. He appeared before me with the face of an angel, clad in a large outer garment called a cloak, made of lambkin—indicative of innocence, purity, and simplicity. At every twist and movement of the man with the angelic face the cloak would rustle and squeak innocence, honesty, sympathy, and enlightenment; but whilst he was thus exhibiting himself before me I accidentally, but fortunately, cast my eye towards what I supposed to be the feet of an angel, but to my great surprise I saw the claws of a "grizzly bear." Oh, said I to myself, I see you are what is commonly called a "bear," but to which constellation you belong I know not; you have, however, made a brilliant appearance, and I presume it is on the money taken from the pockets of the innocent ones. But let me ask, has not this "Cautious Man" been incautious in holding Pennerley shares too long? Now, have not these shares gone so low that "A Cautious Man" cannot sell except at a loss, which makes him sore? Has not this "Cautious Man" been still more incautious in "bearing" the Glyn shares in the face of such a large course of lead ore as is being worked on here in each end and winze too? Such a fine course of ore, I suppose, has never been seen in Wales except at the Van Mine. The news is quite enough to give any "bear" the blues, and cause him to make use of fallacious ratiocinations. The shareholders, however, are not going to be frightened into selling their shares for the satisfaction of the "bears," for such things are what the "bears" fatten on at the expense of the legitimate holder. The Glyn is the most promising young mine in Wales, and is incomparable with

Pennerley. Glyn shows well at present depth, and will shortly compare with the Van in quality, therefore equal returns, dividends, and price of shares must soon come. Hold on and win you who are the lucky shareholders, and not be frightened by a "bear." C. W. S.

NEW CONSOLS.

SIR.—It is pleasing to find that, notwithstanding the evil augury of some sceptical persons, the works in this mine are fulfilling the anticipations of the local manager. There are now ready for shipment 16 tons of copper precipitate, worth 62½ 10s. per ton, also about 80 tons of arsenic, worth about 6½ per ton, and 4½ tons of tin ore, worth about 40½ per ton. The stuff yielding these results was broken by 24 men in one month.

I find that at Dolcoath the company there is treating about 200 tons of stuff per day, which yields about 48000 per month. Now, if at New Consols the company had the same amount of returning appliances as at Dolcoath 13,80000 worth of minerals could be brought to market, which would give a profit of about 60000 per month. I believe it is well known that at New Consols the resources are practically inexhaustible, and no doubt the same may be said of Dolcoath. These facts will give your readers an idea of the benefit of the new system of mining, which, no doubt, ere long will be adopted in many of the Cornish mines, which up to this time have been worked with a loss.

When the additional erections at New Consols, now in progress, have been completed the returns will be considerably augmented, and the time may not be very remote when the company by returning 200 tons per day will give the profit indicated. I am sure that the company by their readiness in advancing money to carry out the operations under the advice of their clever manager deserve handsome dividends, and which they are sure to have.

Calstock, April 26.

OBSERVER.

THE MINERAL PRODUCING GRANITE OF CORNWALL.

SIR.—To the practised eye the difference between the mineral producing and the non-mineral producing rock is easily discernible, but unfortunately from the want of this knowledge much useless expenditure and consequent mining failures have occurred. In the parish of Gwennap, which is the richest known copper district in England, patches of an unfavourable character may here and there be seen, which are known by their fineness of texture, almost resembling Whetstone, and even of a much coarser nature, containing large and sharply defined crystals of felspar, it is equally unfavourable, but where the lodes pass through a rock which is neither fine nor particularly coarse grained, the imbedded crystals of felspar being of a greenish or brown hue, and their extremities rather underrate, or passing gradually into the basis of the rock, and that basis consist of greenish felspar, besides the other ingredients—quartz, mica, and sometimes schist—one can stand with a degree of certainty as to the probability of success or otherwise attending the development of lodes in such a rock; indeed, I have nowhere seen this to fail, but it is also true that in some districts, especially where the cross courses are not so close to each other, that you have to go to a greater depth before meeting with the mineral deposits, hence it is that many mines have been abandoned for want of capital to thoroughly develop their resources, which on a resuscitation and further small outlay the richest courses of ore ever discovered in the county have been the result. The Great Consols and Trevelyan, at the foot of Carn Marth granite range, are two instances where the old workers left off just on the top of what afterwards proved on resuscitation the richest copper deposits ever known in England, and there are still in the immediate neighbourhood sections of ground known to the writer, which there is no hesitation in saying, judging from analogy, will prove on a little deeper sinking equal in richness to any deposits of copper yet found in the district. One piece of ground particularly on the same lode which produced all the riches in Great Consols remains idle through lack of enterprise on the part of the public, although the surface is well exposed, as well as east, returned over 2,000,000 sterling worth of copper. Here is a field for the enterprising capitalist to reap a rich reward for a comparatively trifling outlay, particulars of which can be obtained of the writer. Probably when the cloud has passed off which is now hovering over the whole commerce of the country a revival in this kind of enterprise will take place, resulting, as in by-gone days, in many parties enriching themselves; the present is, therefore, most assuredly a good time to make enquiries into the real merits of the vast amount of unexplored ground comprised within the limits of the county.

St. Day, Cornwall, April 26.

CHAS. BAWDEN.

WHEAL WREY, LUDCOTT, AND NORTH TRELAWAY MINES.

SIR.—The remarks in the Journal—both from Mr. Crofts, a well-known and respected contributor to your pages, as also the news from the Shareholders' Protection Society at Liskeard, as I presume it must be called—are by no means sufficiently strong in condemnation of the behaviour of the directors in their past and present conduct of the affairs of these properties. How they can justify their action before any court of law remains to be seen if they press the matter to a conclusion. There is not the slightest doubt but that had matters been commenced and carried on in a spirit of fairness support would have been forthcoming, but when people see the facts in their true light, and that the vendor is seeking to obtain thousands of pounds, and this in the face of the fact that from the commencement not a single scrap of information as to expenditure has been afforded, that no legal meeting of proprietors has been held, that the whole affair has (with the exception of a meeting at Liskeard last summer) been a mere arrangement at the office of the principal party. There are many men in the City of London and elsewhere who, without being prophets, would have carried out the scheme at a fair remuneration, and obtained the hearty support of large and small subscribers in carrying out the working of the mines, and this in the teeth of so much to damp the spirit of any willing to touch mining matters. As there is excellent evidence to show that the present promoters have done nothing on the ground, and that there are no leases as yet prepared by the agents of the lord, let the owner dispend with the present mining speculators, treat, if possible, with straightforward men of business who have the real interests of the mines and the district at heart, and then see, under modified circumstances, whether steps cannot be taken to put to work the estate, which stands well, and contains good elements of success if worked by the simplified mechanical appliances of the present day. To go to the usual outlay common in the county of Cornwall and elsewhere in the way of machinery would be, methinks, unwise, as much may be done without such outlay, if only local prejudices can be surmounted. It is considered that any sums of money already obtained are so illegally, and must be recovered by the shareholders acting collectively, and I hope that those who have been induced by interested parties to subscribe will thoroughly support the committee of which Mr. Bawden, of Liskeard, is secretary, and see whether Mr. Chilcott, of Truro, is not more than a match for any lawyers of London, both in preventing the illegal payment, and recovery, of moneys, and also in the full prosecution, if necessary, of the principal offenders in a court of law. Mining is made responsible for the most outrageous conduct on the part of those who have all to gain and nothing to lose, which, if sound action were at all times brought to the front, would place it in a vastly different light in the eyes of the public, for to present it in the way in which it is at present conducted is made to suffer for the management of the otherwise valuable mineralogical features. The old motto—"One and All"—must be the watchword of the subscribers in these mines.—April 25.

PRO BOSSO PUBLICO.

PENNERLEY AND GLYN MINES.

SIR.—The letter of your correspondent in last week's Journal, signed "A Cautious Man," has been read by me with some interest, and, perhaps, amusement. If, in his calculations of the latter mine (Glyn), the sum at which he estimates it—namely, at 50,0000, he calls the number of shares at 10,000—he falls into error, for on enquiry he will find but 7000 old are issued; hence he must deduct (say) one quarter of this estimate. At the 30 fm. level he will find the mine, if cut rich (as anticipated by splendid indications), standing at a much higher figure than 60. In his remarks on Pennerley his estimate of the latter is particularly correct and remarkable. Pennerley must shortly become a big mine, and a dividend of large proportions, when the several important events now at hand come off. Of course 24,0000 is no true representation of the value of Pennerley Mine, especially with Tankerville at 170,0000 adjoining, and with such indications as are to be met with in Potter's Pit end of the former. It is a splendid investment for a permanent one, or for a big rise, being the cheapest mine at this moment on "Change, and I with no rival at the price."

ANOTHER CAUTIOUS MAN.

P.S.—It will be seen that Glyn Mine is actually represented by just half the number of shares to be found in its rich neighbour the Van Mine, and consequently 60 per share would represent but 30 per share if Glyn Mine was divided into 15,000 shares.

[For remainder of Original Correspondence, see to-day's Journal.]

ASHETON MINES.—In referring to the Mining Market, the London Correspondent of the *Southport Daily News* (quoting from the letter of a local shareholder who has visited the mine) writes—"Asheton is essentially a jobbers' mine, as the 'washerwoman' knows. I shall have something to say about that estimable lady and her 1000 shares by-and-by. I know at least two men—jobbers—who have made large purses out of this adventure. I wonder if the captain is their own nominee, and if he is a Cornishman? I wonder, too, why information should be withheld from the shareholders? The slice of 200 fathoms maiden ground west taken off Asheton proper, and now termed 'West Asheton,' with a capital of 14,0000, has its shaft down to the 70 fm. level, and driven out to the south to intersect the lode which, so far, has been found in a cross cut made to the 4 ft., strong in blende and spar, and which is going out as they proceed, and a strong branch of ore coming in. The drivings south to the footwall of the lode has not yet been reached, and as this will most likely prove to be the lead-bearing portion of the lode there should be no delay in arriving at the fact. If this shaft had been put down to the 80 fm. level, and further north, the proof of this lode would have been more satisfactory. There should be no nursing of this ground to fill the pockets of jobbers. There is just as good advantage ground for ore here as they have on the other side of the bridge road, Tan-y-Bwlch, where large returns continue to be made."

THROAT IRRITATION.—The throat and windpipe are especially liable to inflammation, causing soreness and dryness, tickling and irritation, inducing cough, and affecting the voice. For these symptoms use glycerine in the form of lozenges. Glycerine, in these agreeable confections, being in proximity to the glands at the moment they are excited by the act of sucking, becomes actively healing: 6d. and 1s. boxes (by post 8 or 15 stamps), and tins, 1s. 6d., labelled "JAMES EPPS AND CO., Homeopathic Chemists, 45, Threadneedle-street, and 170 Piccadilly, London."

Meetings of Public Companies.

EBERHARDT AND AURORA MINING COMPANY.

The sixth annual general meeting of shareholders was held, on Monday, at the City Terminus Hotel, Cannon-street.

Mr. E. L. J. RIDSDALE in the chair.

Mr. ALFRED CRITCHETT (the secretary) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen, we called you together rather earlier than we should otherwise have done in order that you might have the opportunity of meeting Capt. Drake, who is here, and who, as you know well, is the manager of your property in Nevada, and of whom it may be fairly said that it is to him all the prosperity the company has enjoyed since his management is due. (Hear, hear.) I myself personally should not have wished to have met you at this particular juncture, because I must say I had great qualms of conscience in meeting you unless I was prepared to declare, on the part of the board, a dividend, considering the very long time which you have waited in expectation of one. But as Capt. Drake is going away very shortly to the mine, we thought it better that you should have an opportunity of meeting him, and hearing from his own mouth any answers to questions which you may wish to ask with respect to the mine, and with respect to the affairs of your company, which are situated in that region. Now, with respect to the balance-sheet which has been presented to you, no doubt you will think it very odd that there is a profit here shown of more than 38,0000, for the half-year, we are not now declaring a dividend out of that amount. When I met you last time I certainly was under the impression that we should have been able to declare a substantial dividend by this time. But we have been met, as I dare say you are aware, by a winter of unexampled and unprecedented severity in Nevada. The mill has been shut down during the months of January, February, March, and April, and it has been utterly impossible to haul any ore down to the mill in consequence of the state of the roads, which had been rendered perfectly impassable by the snowdrifts which had accumulated there. And, as you are aware, it requires a very large expenditure of money to keep an establishment like ours going month after month in a proper state of efficiency, so as to be able to start as soon as the weather moderates; therefore, you will not be surprised to hear that we have entrenched considerably upon that balance which is shown here in the balance-sheet, which we had hoped to distribute. We have remitted during the month of January 50000, during the month of February 30000, during the month of March 30000, and in the month of April there will probably be remitted 30000 more, making in all about 14,0000, all of which has come out of the profits which we should otherwise have been able to divide among you had the mill been running. Now, this 14,0000 is equal to a dividend of 10s. per share, and although we have now it is very true about 11,0000 in hand here in London, yet we could not think of recommending you to divide any of that money and leave the company bare, because we consider it is only about a fair sum which a large mining company of this kind with all the vicissitudes it may undergo in prospect—it is not a bit more than we should have in hand as reserve fund to meet emergencies. (Hear, hear.) There is nothing easier than to divide money, and there is nothing more difficult than when a company is in difficulties to obtain money. You know we have for a long time past been in difficulties, but we have now turned the corner and made a start. And this year, although we have had this unprecedented winter and this succession of—I may call them—disasters, because certainly we have never had such a winter in Nevada as this year, although we have encountered these difficulties we have been able to meet them, and after having paid all expenses and kept the establishment together we have got about 11,0000 in hand to commence the running, which will commence on May 1. (Cheers.) We have had a telegram in the last two days to say that the mill will start running on May 1, and when Capt. Drake gets up and answers any of your questions he will be able to tell you what are the prospects you have of a run for the season. I shall be most happy before I sit down to answer any questions which any shareholder may wish to ask with respect to this balance-sheet. I have shown you the reason, which I believe is satisfactory to you, why we cannot recommend at the present moment the distribution of a dividend, but I do hope—and I think you will agree with me—that as soon as we have got the mill in running order during a month or two, and the bullion over here, then we shall be in a position to commence to disburse some of this profit which we have waited for so long. (Hear, hear.) If you will look at the balance-sheet you will see that it is in every way favourable. I am not aware that it presents a single unfavourable feature. The stores in hand on June 30, 1875, were only 8323½, whereas now—or, rather, at the close of the last half-year—the stores in hand were 13,373½, so that we shall be at very much less cost for outlay for stores this year than we should otherwise have been. (Hear, hear.) And we have also, as you are aware, abolished the whole of the debenture debt, which was a millstone around the neck of the company, because you could not be said to possess the property when it was mortgaged to other parties. Now the mortgage is entirely extinguished; the debenture-holders have received a very good and satisfactory bonus for relinquishing those debentures, and there are at present only 8000 of debentures standing out, which is an utterly insignificant amount, and when they fall due in January will be promptly met. Before sitting down, you will, no doubt, wish me to allude to one other point—the tunnel scheme for the development of the mine. You must know that we are already down some 600 ft. in depth, as Capt. Drake will confirm, and that the expense of hoisting the ore up from such a depth is very considerable, while the difficulty of ventilating the mine at such a depth is also very considerable; but, on the other hand, as we have found the ore is so uniformly richer in depth, and as we find in all other mines of this formation—I allude particularly to the Comstock lode—as we have always found them to be much richer as they go down, we have decided, after a long discussion with Capt. Drake, embracing not only the geological formation of the mine but also the financial position of the company, we have decided, after careful consideration of those two matters, upon driving a tunnel which is to intersect the lodes of the company at something like 1500 ft. in depth. This Treasure Hill is at a very great height, and the Eberhardt Mine has never been prospected at all. Now, in order to prospect that mine from the top, would cost a very large sum of money, so much so that we have never yet ventured to attempt it, but when we have driven this tunnel, which we have now decided to do, we shall first run, at a depth of 1500 ft., under the Eberhardt Mine, and develop what wealth there is there and afterwards we shall run under the South Aurora. And here I may say that the South Aurora Company has provisionally agreed (Mr. Applegarth, who is one of the directors of that company, will contradict me if I am wrong, but I think I may say the South Aurora Company has agreed) to contribute a very material sum of the amount we are going to expend upon the driving of this tunnel, because we intend to go under their property, and it will settle for them whether their property is the valuable one they believe it to be, and which, I may add, is the opinion generally entertained in the district.

Mr. APPLEGARTH: I think it will be better, Mr. Chairman, if the reporters do not put down any of your remarks about the tunnelling; it may not be advisable to publish all these details.

The CHAIRMAN continued: My colleague, Mr. Applegarth, suggests that the driving of this tunnel is a matter which is watched with very great interest by all parties in Nevada, and if the reporters were to report what I am saying we might be forestalled by parties there who are anxious to get any advantage they may at our expense, and blackmail us if possible. There is another company which is endeavouring to run a tunnel in another direction through Treasure Hill, and of course it is very advisable that we should keep as far as we can to ourselves the particular direction in which we intend to go. But I may tell you what the cost will be. We anticipate that this tunnel will cost from first to last, with the expensive machinery which is necessary, altogether about 30,0000—not more. But considering that we shall not be able to run that tunnel

at the rate of more than 100 ft. a month, it will not trench upon the resources of the company. I apprehend, and Capt. Drake, who is our great guide in all these matters, agrees with me in this estimate, that it will not cost much more than 5000 a month, and therefore will not materially trench upon our resources, seeing that our mill, when in full working order, can turn out about 60000 to 70000 a month profit. (Hear, hear.) Now, the advantages of this tunnel will be very great, not only in striking our ores at this great depth of 1500 feet, but in enabling us to do away with all hauling in the winter, because we shall put down a small tram through the tunnel which will run the ore down to the mill, which is situated but a very small distance from the mouth of the tunnel, and we shall thus save the whole of the hauling expenses, which are calculated at about \$3 a ton. The tunnel is about 5000 ft. in length, and we calculate it will be about two years in running. In the meantime we shall not suspend operations in the ordinary way—that is to say, we shall go on with the driving and with the extraction of the ore. Now, gentlemen, I shall be happy to take any discussion that you may wish upon the balance-sheet; after we have taken that and passed the balance-sheet, then I will call upon you to ask any questions that you may wish to put to Capt. Drake with regard to the mine, and then we shall proceed to the other business. I beg first to move that the accounts and report for the half-year ending Dec. 31, 1875, be adopted. After that has been seconded I would venture to throw out a suggestion that we should have this balance-sheet presented only once a year in future, because under the present system a wrong impression is conveyed to the shareholders of the financial position of the company. For instance, we shall have another meeting in October next when the accounts presented will show only two months' working against six months' costs, and that would show a totally unfair state of things, leading to the belief that the company was not in so good a position as it is, while on the present occasion the accounts show a rather too favourable position of affairs; therefore, although I propose that we should still have half-yearly meetings, we think it would be far better to have only one balance-sheet presented during the twelve months, and that at the end of the year. I now beg to move—"That the report and balance-sheet, as presented, be adopted," and perhaps one of the directors will second that.

Mr. APPELGARTH: I beg to second that proposition.

The CHAIRMAN, after a short pause, rose again and said: If you have no questions to ask, gentlemen, with regard to the accounts and balance-sheet, I will propose their adoption to the meeting.

Mr. J. U. TAYLOR: I should like to ask one question, and that is if the bullion set down in the accounts at 14,779 has been realised, and is it in hand?

The CHAIRMAN: That has been realised since the closing of the accounts, which you see are made up Dec. 31, 1875.

Mr. T. G. TAYLOR: There is one point, Mr. Chairman, I should like to touch upon. You are putting the report and accounts together. I have nothing to say against them except this one little point—cannot you afford to declare anything in the shape of a dividend. (Hear, hear.) You know among the people who have invested their money in joint-stock companies there is but one idea, and that is to obtain something in return for the investment they have made. Now, I am not going to ask you to imitate another company I know of which borrowed 50,000 for the purpose of paying a dividend, but I am going to show you what was the results in the case of the company that adopted this policy. On the circulation of their report that they were going to pay dividends out of the borrowed money the shares immediately rose up, and they are now at something like 40 per cent premium; whereas in the case of your company when it was announced that there was no intention of paying any dividend the shares at once fell, and they now stand at 25 per cent discount, yet you owe nothing, and have money in hand. And these circumstances arise simply in this way—men say it is no use buying shares in a company unless it pays a dividend. At least, you might distribute 5s. a share. Unquestionably we are in a position to pay a dividend. It has been said that money will or may be needed for the current requirements of the mine, but I cannot suppose that the whole of the 14,000 which has been remitted to Nevada since the first of the year has all gone. We have doubled our supply of stores there, and although we cannot divide stores, yet they stand as the equivalent of money, and will be represented hereafter by returns of silver. Now, there are some shareholders who have invested very nearly the whole of their savings in this company, and they now say we bought in at 84 10s., and now, having received no return, we must sell out our principal at 74 10s. in order to live on it, being in absolute want of the money. I ask, therefore, whether it is not possible to give us 5s. per share, or even 2s. 6d., for by giving us that you will take us out of that awful column in the newspapers where we are at present classed among those shares which are in default. (Hear, hear.) And let us be no longer in that dreadful and humiliating position, and let us receive (say) at least 10s. per annum in the shape of dividends. You know it is no use going on year after year, and apparently for ever, earning money, but only enough to pay management expenses, and never dividing any profit among the shareholders. (Hear, hear.) I am happy to hear you say that we can carry on the development of the mine by means of the proposed tunnel without materially diminishing the profits. This fact only further strengthens the point I am contending for that you can well spare out of 11,000 in hand to give some 3000 or 3500, as a small dividend. (Hear, hear.) Let the world see we are alive, it is no use earning money unless we put some of it in our pockets. I do not speak for myself, but on behalf of many shareholders who I know have suffered very severely from their patience and faith in this company. And now when we see some profit I say it is time that we should get a small dividend, and that we should be cheered by some clearly expressed assurance that we have a good prospect before us of a continuance of those dividends. Capt. Drake in his report tells us that he expects this company will eventually pay good monthly dividends, and he is a man of his word. (Hear, hear.) He has done more than he even promised to do. This company is, of course, indebted entirely to Capt. Drake for the promising position it now occupies. He, in fact, has been the means of saving the company. He has not only relieved the company of an enormous load of debt, but he has brought it into, I may say, a dividend-paying condition. His services out in Nevada have been invaluable to us, and while congratulating ourselves upon possessing the services of so able and successful a manager, let us express the sincere hope that we may long continue to enjoy the benefit of his ability and experience. (Hear, hear, and cheers.) I have no doubt under his management we shall continue to earn as much as we have done per month profit. Now, in connection with our prospects in this company there is another point to be considered. There is a strong probability that in driving this tunnel we may discover similar riches to those first extracted from the Eberhardt Mine. If you ask Capt. Drake he will tell you that the richest ores in Treasure Hill were taken out of the Eberhardt Mine—ores varying from \$1200 to \$1400 per ton. Our friend Mr. Applegarth has been upon those treasures of ore for nights together.

Mr. APPELGARTH: And a very nice bed they were, too.

Mr. T. G. TAYLOR: And who shall say but what we may find some of this valuable ore when driving in upon the Eberhardt Mine at the base of the mountain. It is quite possible that we shall make a profit out of this tunnel before it comes to its extreme length, and the time may shortly come when it may be desirable to work the mine from below. I do not wish to occupy the time of the meeting, but I wish to point out to you the possibility of making some small distribution of profits. I beg respectfully to suggest that you should accept my proposition that a dividend of 2s. 6d. per share be at once declared out of the profits in hand.

Mr. CHAMBERS: Gentlemen, I beg to say that I agree with what Mr. Taylor has said. We are not likely to want the money, and I think the time has arrived for the directors to take into consideration that there should be a small dividend paid. Whilst I am on my legs I may say I did not quite catch what you said on one point; but, according to the figures I have put down, you, Sir, have accounted for 25,000 out of the 36,000, leaving 11,000 unaccounted for. I and my friends around me would be very glad to have a dividend. As regards the balance-sheet, there is only one item in

it on which I would make a remark, and that refers to the gentleman on your left—1000 for legal expenses.

Mr. KIMBER (solicitor): It is not for me, Sir; I think you will find these are expenses in Nevada.

Mr. CHAMBERS: I always look upon you, Sir, with a great deal of pleasure, as you are always smiling, but if you are paid for it you can afford to smile. (A laugh.) I have been connected with many companies, but I never knew a solicitor give his opinion for nothing. In some other companies, with which I have been connected for 12 years, I have never seen the solicitor present at the meetings, and some time ago, when a legal question arose at one of the meetings, we had to send for the solicitor, and I think it should be the same here. ("Time.") If we want the solicitor we should send for him.

Mr. T. W. TAYLOR: This has nothing to do with the business of the meeting.

The CHAIRMAN: If no other shareholder wishes to comment upon the report or balance-sheet, I will reply in brief to Mr. Taylor and Mr. Chambers. The burden of their grievance seems to be that we are not able to declare any dividend. I can assure you, as I told you before, that nothing would be more agreeable or more in accordance with our feelings than to give you a dividend now. There is nothing more unpleasant, especially to myself, than to come before you on this occasion without being able to declare a dividend. I prefaced my speech by telling you how irksome it was to appear here without being able to offer you a dividend; but I told you before that if you wish to imperil the property of your company you will take the money now. (Hear, hear.) Now, I am certain Capt. Drake will back me in this respect when I say that if you want to throw the property away you will take the money now in the shape of dividend. The money will not go by being in the bank; it is operating for the good of the company, which has just got out of a slough such as no other company has got out of. (Cheers.) For that we have to thank your manager, Capt. Drake. He has to go back to Nevada, and if you send him back empty handed, and without money to pay the men and carry on the establishment, I am certain he would not go, for he has gone through such an amount of anxiety and trouble in connection with this company, that it is more than any man could face a second time. As soon as our mill is running, which I hope will be on May 1, and we get the bullion over, no one will be more pleased and more quickly anxious to divide money (as far as we can legitimately and with advantage to the company do it) than we shall; but if you want money to be borrowed in order to pay dividends, then I must say that is a thing I cannot consent to do. We must pay our way honestly, and declare a dividend honestly, but to borrow money in order to pay a dividend is a sure sign of decadence and downward progress in the history of any company. I am sorry to go against the feelings of any shareholder on the dividend question. I keenly feel about it myself; and although Mr. Taylor said I "promised" a dividend, of course one individual on a board cannot promise a dividend any more than he can. We can only say a little further. I only gave you the probability of paying a dividend, and I gave you the inferences from which I formed that judgment, and you were able at the time to take my calculations and inferences, and see if I was overstraining the case. I am certain that if we had not been forced to remit the 14,000, in consequence of the mill being idle, there was the 10s. per share which we could have distributed, or a portion of it, but the elements no one can control. Well, gentlemen, the report has been proposed and seconded, and I shall now put it as a substantial resolution, and afterwards I will ask you to put to Capt. Drake any questions you may think proper. You must not expect him to make a set speech, for, although an admirable miner, he has not had much experience in addressing London meetings; he will answer any questions, but he would rather not make a speech, as it is something out of his line. I will now put the resolution that the report be received and adopted.

The resolution was put, and carried unanimously.

The CHAIRMAN: There are two directors who retire by rotation, and offer themselves for re-election—Capt. Frank Drake and Mr. H. A. Hammond; I beg to propose that those gentlemen be re-elected.

Mr. J. WILD: I beg to second that.

The resolution was carried.

The CHAIRMAN: Now, gentlemen, Capt. Drake will be ready to answer any question you may wish to put to him. Mr. Wild has also been there, and knows the property thoroughly; he is a practical man, and I do not know that we have ever had any better opportunity of having any questions answered with respect to your property. Both those gentlemen are thoroughly acquainted with the property, and will be happy to answer any questions you may put.

Mr. J. H. LANG: What is the value per ton of the 3000 tons of first-class reserve ore? I know the average value is \$95 per ton, but I should like to know the value of these 3000 tons.

Capt. DRAKE: I estimate the ore in the mine at the same rate as that we have taken out. I make my estimates from them. When I say we have 3000 tons of ore, I mean such ore as we have milled for the last year.

Mr. J. H. LANG: First-class ore?

Capt. DRAKE: \$95 per ton; that is what we call first-class ore.

Mr. J. H. LANG: Then its actual worth is about 39,000.

Mr. WILD: There are the costs to come off.

Mr. J. H. LANG: Yes, I know that.

Mr. T. G. TAYLOR: May I ask what that 14,000 out there is now being employed upon? I cannot suppose that it is for mere wages.

Something, no doubt, is going on to represent that 14,000 out there. Capt. DRAKE: It is for the development of the mine during the time the mill is idle. You will understand that when I went out there to the mine, three years ago, unfortunately the mine had not then been opened, and it could not possibly be opened, during the time it was worked, to any extent, and it required me to put a great deal of money into prospect, which I have done, and generally every winter I have kept on all the men I have had the means of paying. I have kept them at work doing the prospecting work, and the money sent out this winter is for that purpose—for sinking my inclines, running my drifts, and working the mine, so that I shall have ore during the summer.

Mr. TAYLOR: Has this winter caused any more loss than last winter?—Capt. DRAKE: You can judge for yourself, we stopped on Jan. 1, and we have not run yet.

A SHAREHOLDER: Has no new discovery been made?—Capt. DRAKE: No, not from Jan. 1.

Mr. J. WILD: I will make one remark, which it is necessary to impress upon the shareholders. I think if it was properly considered by any company employed in mining in Nevada that the nature of the climate is excessive, I am sure it would have saved much of the false calculations which unfortunately heralded many of the mining undertakings in that country. I have considered it very much, and I have come to the conclusion that the production of the Nevada mines must embrace only about eight months milling, because if you extract the ore on the mine, and mill it during the severity of the winter, you certainly cannot get the same amount of profit from it that you will in the latter months of the year. I think shareholders must begin to conceive that this is the course which this company will be bound to take. I have just returned from the country—I preceded Capt. Drake home. When I was there I looked into all these matters. It is not an agreeable opinion to express, but I express it with confidence, that I think many other American mines would do well to follow the advice. It is no use taking out the ore unless you get the silver out at a respectable profit. Capt. Drake's estimate is quite as much as I expected it would be, but it is only three months milling supply, and although we expect as we go on to increase the supply, and keep the mill running, it will not do to go to the end of the year and find the mine exhausted. We must keep certain reserves behind, and when we have that ore we must take the silver out at a profit. It is no use mining at a loss. The mischief of this company from the commencement was that the mill was run, and run, and run, in order to bring returns, and the consequence was that three years ago the whole of the capital was frittered away in the most absurd manner. This board had to undertake the management without any means; and now that the company has been restored, as it were, by the energies of our good friend, Captain Drake, it is rather hard that we should be

asked to give the money away in dividends, when we are trying to develop the property. (Cheers.) There was never a mountain in that great silver country more deserving of a trial than the Great White Pine Mountain, and we should not be doing our duty to you which we intend to do. (Cheers.) I would rather very much, as far as I am concerned as a shareholder, let the last penny I now have in the company go in trials than accept dividends. We have resources now at the command of the board; if we get rid of that it will be no use asking for further assistance. My confidence is so great in the mountain that if more capital were required I would rather advocate putting 100,000 into the resuscitation of mines in the White Pine district than putting it into other enterprises now before the public. It must be remembered that we have a wonderful example within a pretty limited distance—that is the Comstock lode. The Comstock lode never got ore at all until they were 1000 ft. below the surface. There is no doubt that ours is a wonderful property, but it was spoilt by too great success in the first instance, and money was spent too freely. The Comstock lode turns out 6000 tons per month.

S. HANDLER: My shares cost me 29, and I should like to see a dividend.

Mr. WILD: My shares cost me 40—the greater part of them.

A SHAREHOLDER: You might both buy to average now.

Mr. WILD: As the Chairman has very well put it—if we give the money away in dividends there is no working capital, and these trials will not be made.

Mr. J. WYTHE: I was going to ask a question about the policy adopted by the directors. I dare say the policy you have pursued to-day in not declaring a dividend is a very sound one, particularly as you must be better judges than we on this side of the table are. At the same time, I cannot help thinking it would be satisfactory to the community, particularly to those shareholders who are not present, if you would kindly explain the difference between what you have now in hand and the total amount of net profits for the half-year—38,000. You have accounted for 14,000, which I understand has been remitted to Nevada, but after deducting that amount there remains a much larger balance than the sum you mentioned as lying at our bankers. I have no doubt you can give a satisfactory explanation of this, but still I think it would be satisfactory to the shareholders in the company who are not present here to-day that they should hear something about that matter. Therefore I have raised this question for the purpose of giving you an opportunity of more fully explaining the balance of profits in hand, and I am induced to do so more particularly because I met a very poor shareholder the other day, who said—"I think very differently from you about the prospects of the company; I would sell out at once, and get rid of my shares if I could." I pointed out the large balance we had in hand, and asked him what he thought the directors would do with it. He said—"Oh, they will spend it." (A laugh.) Hence I think, seeing these are the opinions held by some of the proprietors, that it would be desirable that some explanation went forth to the public showing how the money has been frittered away—I do not say improperly or unwisely. The difference between the amount of profits for the half-year and the amount you have remitted to Nevada is about 24,000, whereas you have accounted for only 11,000.

The CHAIRMAN: I thought I had pointed that out, Sir. It is tolerably clear in this balance-sheet. There is 11,000 on deposit and 6000 on current account. There has been remitted to Nevada 14,000. The bonus paid to the debenture holders for bringing in their debentures and interest for the half-year to last December amount together to 6000. The four years arrears of fees to the old board, which were voted two meetings ago, and the fees to the new board amount altogether to the sum of 2200. The general expenses are 978. The excess store expenses, which you will see on comparison of the two sets of figures—those for the month of June, 1875, and those of December, 1875—amount to 5050, making a total of 38,032, and that completes the whole of the balance of net profit as shown here on the balance-sheet. That is a full explanation of the matter. With regard to the reserves which Capt. Drake has been questioned about. Of course we all know that no miner in a mine can see much further than the point of his pick; at the same time it is a very satisfactory and a very favourable feature with respect to our mine to know that we have 3000 tons of ore stripped and ready for extraction to bring to the mill, which has an average value of \$95 per ton, so that during the time we are milling that we shall have time for exploring the rest of the mine. (Hear.) I do not think that at any period of the mine's history we have had such large reserves in sight as we have at the present time. We have always had an exceedingly good supply, and there is no reason why that supply should suddenly cease now. (Cheers.)

A SHAREHOLDER: Tell me the amount you estimate the reserves at?—Capt. DRAKE: 3000 tons.

A SHAREHOLDER: I thought it was more.—The CHAIRMAN: It is not extracted, it is ore in sight. That is what we have in sight. We never had so much in sight before.

Capt. DRAKE: I hope you will not think that is all; when I say there is so much in sight I mean I have worked round, and I feel confident, and in fact I almost know it as well as I know anything, that we have that amount. How much more there is I cannot say. Of course we cannot, as the Chairman has said, see far into the mine.

A SHAREHOLDER: You estimate there is a deal more. (A laugh.)

Capt. DRAKE: Assuredly otherwise I should not advocate the running of a tunnel. I believe you have the best property in Nevada, but we cannot open it unless we have money to do it with. I have worked there, gentlemen, pretty hard, but I have not had the means to work as I wanted to work. If a miner has the money with which to work he can save a good deal; it has cost me a great deal more to work the ore than it would have done if I had had the means. If the shareholders see fit to divide the money it is not for me to say otherwise; I leave it to the directors to pay a dividend if the shareholders say so. I am not going to object, but I assure you I do not feel like going to work with my hands tied again. (Cheers.) I worked for three years—Mr. Applegarth and myself—to put the property on the market, he believing we had a good property, and I believe we had a good property. When speaking of the Comstock lode you must take the best lode on the Comstock (the Nevada Consolidated), and you will find that whilst one lode is paying the other has an assessment upon it. Unfortunately we are the only parties who are at work on Treasure Hill. We have to do all the prospecting; if we find no ore it shows the hill is good for nothing, but if we find ore it is good for all parties. I think we have succeeded remarkably well during the three years I have been there, and I think the mine has shown that there is ore. I advocate the running of a tunnel, but if you say no, it is not for me to say otherwise. But I believe if you run the tunnel, and strike the mine at a greater depth, my friend, Mr. Taylor, says I think you will give dividends every month. That is what I think. I do not know when I told Mr. Taylor that I was going to pay a dividend every month.

Mr. TAYLOR: It is in your report.

Captain DRAKE: It is in my report that I hope to pay dividends monthly, and there is no reason why we should not, but we cannot do it once. I have not had the money to go to work and get drills, and so work with greater speed; but we have had to hammer the ore out, and this takes time. It is impossible to do more than a certain amount of work. You can only put so many men to work in this chamber; so it is with a mine. I firmly believe that you have a good property, if not I never would have stuck to it. I think so still, and I believe that if the shareholders do what is for their interest, and drive this tunnel, you will have a very good property. (Cheers.) I do not know that there is anything more I can say.

Mr. WHITE: I think it would be satisfactory to Capt. Drake and the directors generally if some expression of opinion were taken with respect to the policy of opening up the mine. I think it will strengthen the hands of the company if an expression of opinion were taken. I agree with what has fallen from Capt. Drake with respect to opening up the mine, but at the same time I suggest an expression of opinion should be taken.

A SHAREHOLDER: I think we are all agreed on that point.

A SHAREHOLDER: Certainly.

Mr. J. SCHOFIELD asked what amount they realised per unit for their copper? The CHAIRMAN said it was sold at the Swansea ticket price, which was settled monthly. He believed it was 11s. 6d. to 12s. was about the price realised, and 16s. for the precipitate, the produce of the cementation.

Mr. J. SCHOFIELD asked if it were possible for the Spanish Government to levy taxes on the property?

The CHAIRMAN said the property having belonged to the Government itself was sold to the company under the conditions of a public auction, which exempted the property from a number of claims that may lawfully be made by the Spanish Government upon other property. They had to pay a slight war tax upon the exported mineral, but they had distinct and decided privileges as having bought a government property in contradistinction to ordinary property held by foreigners in Spain.

Mr. HARRISON asked if the revenue coming from the mine was sufficient to meet all the expenses. It could be a very great satisfaction to all if they knew there was no prospect of a further issue of bonds.

The CHAIRMAN could not say the capital account was absolutely closed, as the outlay they were committed to was about 70,000l., but in organising a great work some further capital outlay might be needed to be made. He had, however, every hope it could be done and would be without the issuing of further debentures. (Hear, hear.) They had issued 1,000,000l. of 7 per cent. debentures, and had a right to issue 2,000,000l., but there was no present expectation of being obliged to issue more.

Mr. STURGEY understood that in no case could more 5 per cent. debentures be issued. The CHAIRMAN said that was so.

The report and balance sheet were adopted unanimously.

Messrs. Turquand, Youngs, and Co. were re-elected auditors.

Mr. STEWART proposed a vote of thanks to the Chairman and directors. He had attended a good many public meetings, but he must say he had never heard anything more clear, more lucid, or so full in its details than the statement they had just heard from the Chairman. (Hear, hear.) They all had every confidence in the board, but he must add that the impression conveyed by this meeting only tended, if possible, to increase that confidence—all shareholders must feel that the directors were all honourable men, doing all they could to promote the best interests of the company. (Hear, hear.)—Mr. HAMILTON seconded the proposition, which was put and carried unanimously.

The CHAIRMAN thanked the shareholders for the kind manner in which the resolution had been put and carried. The proceedings then closed.

LUSITANIAN MINING COMPANY.

A general meeting of shareholders was held at the company's offices, Queen-street-place, on Thursday.

Mr. HENRY REEVE, C.B., in the chair.

Mr. W. G. WILLIAMS (the secretary) read the notice convening the meeting.

The CHAIRMAN declared the meeting duly constituted, but explained that it was of a purely formal character, as Mr. Richard Taylor was about to go to Portugal, and it was proposed to adjourn the meeting until his return, so that he had only to ask them to elect the directors who went out by rotation, but offered themselves for re-election.

Upon the proposition of the CHAIRMAN, seconded by Mr. J. P. JUDG, the re-election of Messrs. J. and R. Taylor was unanimously agreed to; and on the proposition of the CHAIRMAN, seconded by Mr. HENTY, Mr. W. Francis was re-appointed auditor.

The CHAIRMAN said that the only remaining business was the passing of a resolution that the meeting be adjourned until May 25, by which time they hoped to have Mr. R. Taylor's report upon the property. He might remark that they looked forward to Mr. Taylor's visit with much interest, as the accounts from the mine are more encouraging than for some time past.

Mr. R. TAYLOR remarked that as he had an appointment in Madrid on May 31 it would be impossible for him to be present at the adjourned meeting.

The SECRETARY stated that May 25 was the last day that they could adjourn according to their deed, but that if a quorum did not then attend it would stand further adjourned until some day within the ensuing month, so that there would be no difficulty.

The usual complimentary vote to the Chairman terminated the proceedings.

THARSIS SULPHUR AND COPPER COMPANY.

The tenth ordinary general meeting of shareholders was held, on April 20, in Maclean's Hotel, Glasgow, Mr. CHAS. TENNANT, of the Glen, chairman of the board of directors, presiding. There was a large attendance of shareholders. Mr. Jonathan Thomson (secretary) having read the notice calling the meeting, the report (which appeared in last week's Journal) was taken as read.

The CHAIRMAN, in the course of the address, in moving the adoption of the report, said:—When last I had the pleasure of addressing you I ventured to conclude my remarks by stating that we looked forward with confidence to the results of the company's operations for 1875. You will, I think, agree with me that the report and balance-sheet now submitted fully justify that observation. Considering them, with the knowledge of all their details and bearings, I look on them as the best we have yet laid before you. Although our pyrites invoiced to consumers has been 17,000 tons less than in 1874, and the price of sulphur 3d. per unit, or nearly 2s. per ton, lower, and though profits from the metal works have been seriously diminished by the fall in the value of our iron or purple ore, both these departments have done better for us than in 1874, the result being that we have a gross profit, as shown in the profit and loss account, of 278,000l., in round numbers, against 263,000l. in 1874. This result is due chiefly to lower costs everywhere—a to a fractional improvement in the copper contents of the ore, an increased production in the metal works, and rather better prices for copper. Referring to the latter, I may state that the outlay on the removal of the overburden has been chiefly connected with the lightening of the lode on the south side. We are working liberating a large mass of good mineral, and preparing for deeper open-cast workings. The extraction this year has been confined entirely to the north lode, and amounts in all to 410,654 tons, being the largest quantity we have taken in any one year from that lode. For 1875 we propose to take 350,000 tons from this lode, and 50,000 tons from the centre lode, where we hope to be extracting from the open-cast in June. The improvements, renewals, and repairs connected with our roads, buildings, and plant on the mine have been unusually large, but, in consequence of the writings down, the amount at the debit of this asset is increased only by 432l. Our metal works are in good order, and doing well. The production of refined copper has been 8110 tons, against 7210 in 1874. Copper on the value of which our prosperity so much depends, has remained without much fluctuation during the year. I have alluded to your principal assets—the figures on the other side of the balance sheet speak for themselves. The fund set aside against railway and pier now amount to over 92,000l. The royalty due Dec. 31, amounts to 41,491l. As to the balance sheet—this side of our balance-sheet—the divisible balance—it amounts to 211,000l., against 229,000l. in 1874. The "writings off," the "interest account," and the "debit account" absorb 21,572l. more than they did in 1874, and thus reduce our dividend for the year by 2½ per cent. We carry forward a balance of 8552½l. against 4233l. in 1874. The last subject which remains to me to notice, and one to which you may attach greater importance than to any other, is our prospects for 1875. We begin the year with contracts for 250,000 tons of pyrites, and most of these contracts are for three years. This is 25,000 tons more than we delivered in 1875. The price for nearly the whole is 2s. 6d. per unit, or about 7s. 9d. per ton less than in 1875. To meet this falling off in price we have three sources to which we must look—1. Better copper contents of the mineral imported—2. A return to normal profits on the cementation process on the mine—3. Increased economy in every department.—Mr. JOHN MOFFAT seconded the motion, which was unanimously agreed to.

Mr. WM. MEWEN afterwards proposed the re-appointment of the four retiring directors—Messrs. David Wilson, John Williamson, David Gamble, and J. Tennant. He was sure the concerns of the company could not be left in safer hands than in those of the present board.—Mr. JAMES W. JOHNS seconded the motion, and in doing so remarked that he was satisfied the company was never in a more prosperous condition than at present.

The DEAN OF GUILD, after speaking in laudatory terms of the work and character of the directors, proposed that their remuneration for last year should be 4000l., and that for the future, and after otherwise determined, a like sum should be an annualy paid to them.—Mr. HUGH BROWN seconded the motion, which was carried by acclamation.

Mr. BECKETT afterwards proposed the re-election of Messrs. Moore and Mackenzie as auditors, which was agreed to.

On the motion of Mr. RANDOLPH, thanks were afterwards tendered the directors for their past services, and to the Chairman for presiding over the meeting.

Mr. ALEX. FRASER then introduced a proposal which he and certain other shareholders regarded as in the interests of the company—that the share capital of the company should be converted into one half preferred shares and the other half deferred shares. Such a conversion, Mr. Fraser believed, would steady the stock of the company, and prevent speculators from attacking it as they did at present. He moved the appointment of a committee to confer with the directors on the subject. Some discussion followed in the course of which it was contended by several shareholders that the proposed conversion of shares would rather increase than diminish the fluctuations in the price of shares, and that for other reasons the scheme was an objectionable one.—Dr. WALLACE met the motion by an amendment to the effect that the committee should not be appointed, and on a division, the amendment was carried by a large majority.—The meeting afterwards separated.

WHEAL KITTY (ST. AGNES) MINING COMPANY.

A general meeting of shareholders was held at the offices, Austin-friars, on Tuesday.—Mr. W. CLARKE in the chair.

Mr. HICKEY (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

The accounts showed a credit balance of 1354 18 7d., after having charged four months' costs against three months' returns.

The report was read, as follows:—

April 24.—We have met with nothing in the cross-cut, driving north of new shaft, worthy of special remark since our last; we shall continue the driving in this direction for some few fathoms further, in order to prove the ground, as we think the lode will be found in a short time. Our progress has been much retarded at this point during the last two months, in consequence of an influx of water—we presume from the stopping of the adjoining mine, West Kitty—and caused us to alter our pitwork; this has been done, and the water is now perfectly under our command. In the 142, driving west of new shaft, the lode is worth for tin 11l. per fathom, with a promising appearance for an early improvement. In the 142, driving east of new shaft, the lode is worth for tin 8l. per fathom. In the 130, driving west of new shaft, the lode is worth for tin about 20l. per fathom—a very promising looking lode. In the 118, driving west of new shaft, the lode is worth for tin about 18l. per fathom. The winze under the 118 is communicated with the

130, causing good ventilation. The lode in winze under the adit level, west of eastern boundary, is much as when last reported on.—Old Lode: In the 90, driving east of engine-shaft, the lode is presenting better appearances for the production of mineral, and is worth for tin 7l. per fathom. In the 100, driving west of engine-shaft, the lode is worth for tin 7l. per fathom. All other pitches and bargains are much the same as for some time past. You will perceive we have been compelled to raise an extra quantity of tin during the three months to provide for the extra or thirteenth month, which occurs at the end of the year, clearly showing with an improved price for tin we should resume dividends at once.—W. TEAGUE, STEPHEN DAVEY, RICHARD HARRIS.

The CHAIRMAN said that the accounts before the meeting embraced four months' costs against three months' returns; under the four-weeks system the period up to date was the end of the financial year, necessitating the charging up of the thirteenth, or an extra month's cost. In the accounts credit had been taken for 87 tons 11 cwt. of tin, realising 4088l., but in last account 30 tons had been credited, leaving 57 tons for the quarter, realising 2568l. The credit balance of 1354 18 7d. was about the same amount as carried forward at the last account, although some 500l. had been charged for the thirteenth month's cost. He should add, that in order to provide this 500l. the returns had been increased by about 12 tons. With a better price for tin the returns could be permanently increased, and the payment of dividends resumed.

A SHAREHOLDER said that, considering the price of tin and other circumstances, the financial condition of the mine and the general results were much more satisfactory than he had expected to find them. To raise more tin than sufficient to meet the working cost while its price remained so low would, he thought, be a most unsound policy.

The CHAIRMAN said that as soon as tin commanded an improved price they would be able to again pay dividends.

Mr. HICKEY mentioned that the first parcel of tin sold during the past quarter realised 47 10s. per ton, and the last parcel 44 10s. In the preceding quarter the tin sold for 52 10s., or a difference of 5s. per ton, which on the quarter's return would have shown an additional sum of nearly 500l. to the credit of the mine.

The accounts were passed and allowed, and with the report, were ordered to be entered on the minutes.

A vote of thanks to the Chairman closed the proceedings.

WEST CHIVERTON MINING COMPANY.

A general meeting of shareholders was held at the offices, Gresham Buildings, Basinghall-street, on Wednesday.

Mr. T. SMITH (of York) in the chair.

Mr. SHARP (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

The accounts for sixteen weeks, ending Feb. 26, showed a profit of 1398l., and a balance of assets over liabilities of 1929l.

The CHAIRMAN said the committee had gone over the accounts several times, and had very much pleasure in submitting them to the shareholders. There was nothing very startling to report at the mine, everything was going on steadily, and fair progress was being made in each department. For the time of year the returns were good, as it must be borne in mind that in working a mine like West Chiverton the sixteen weeks now under review were the worst of the year, what with the holidays, short days, bad weather, and other things, the time in which they could carry on operations was very much diminished. They were not able at this season of the year to make so large returns as during the summer, but if the shareholders analysed the accounts they would see the returns of the past four months were very much better, and showed great improvement upon the same period of last year. The profits during the corresponding period of last year were 100l., while it had been seen that the operations in the same period this year had resulted in a profit of 1398l.—a comparison which he thought could not fail to be satisfactory.

When they considered that in a short twelve months they had made an advance in the accounts of a profit of more than 1200l. he thought they would consider it a very large and very satisfactory improvement. The balance at the last meeting was 531l., which added to the profit during the past four months' working made the available balance 1929l. Upon comparing this with the amount for distribution at the end of the preceding sixteen weeks, that is in November last, it would be seen that it was short by only 200l. of the result of the workings at the best period of the year. He thought when they took that fact into consideration they would be satisfied that their servants at the mine had used every endeavour to keep up the returns. The amount to be dealt with now was 1929l. The stormy weather of the last four months had materially interfered with the working; it had prevented them during three or four weeks shipping their blende at the wharf, and in the meantime the mine had become choked up with materials, causing extra expense in turning it over, and making room for further progress, but to prevent this in future they had been laying down very expensive floors for their blende, which was now becoming a very important part of their working, requiring much more room than did their lead. He might also mention that the company would be obliged to provide some further crushing machinery, the present machinery not being sufficiently large or powerful to carry on their works. The dead work at the mine had been fairly carried on; they had laid out a very large amount in that respect, and from which they hoped eventually to derive considerable profit. The sinking of the shaft to the 160 fm. level was progressing with all dispatch, and the expenditure on that account amounted to 50l. and 60l. per month, for which there was, of course, no present return. In future they hoped it would yield considerable returns, and greatly add to the value of the mine. He trusted at the next meeting to be able to inform the shareholders that the 160 fm. level had been reached. With regard to the lease he reminded the meeting that it fell in in September last. As to its renewal the committee had been put to an immense deal of trouble and delay. Many interviews and conversations had taken place with the agents of the landlords, and it was hoped that now, at least, the matter was in a fair way of settlement. He trusted at the next meeting to be able to report this matter had been finally settled. They had made the best terms possible, and under the circumstances he had no doubt the shareholders would be satisfied if the whole of the engines and machinery continue to work well. A small accident had occurred, but had been remedied, and all was now going on right. He considered the property to be in a very good condition, and had not the slightest doubt, as far as he was able to judge, and bearing in mind that he had a favourable opinion from competent authorities that the property would continue in a good and sound condition, and likely to last for many years. He concluded by moving that the balance-sheet for the four months ending with Feb. 26 be received and passed.—Mr. WEST seconded the proposition.

The CHAIRMAN, in reply to a question as to the item for coal sold, said the company had been supplying East Chiverton with coal, which had been purchased in large quantities, and were able to sell it at a small profit. His (the Chairman's) expenses charged in the accounts included his travelling expenses from July to the present.

The SECRETARY said that the item for low charges was for expenses incurred by the late executive in connection with the granting of the lease; it had been going on for two or three years, at least since 1869 by their late law agents, who though they had been all that time in correspondence with the agents of the lords, had not succeeded in obtaining the renewal of the lease, but they were now in a fair way to get it granted.—The resolution was put and carried unanimously.

Capt. SOUTHEY, in reply to questions from Mr. Heard, said that he could hardly tell at present what returns they were likely to get from the 160 fm. level, having scarcely yet proved the 150 fm. level. He had no doubt the lode was as good there as in the 140. They were taking the stuff from the mine precisely as it came from the lode, and not picking the rich out of the poor. He confirmed the desirability of exploring and incurring the necessary expense to do so. He thought that 50l. per month expended in that way would prove very remunerative in the future.

The CHAIRMAN said that the available balance was 1929l.; the committee recommended a dividend of 10s. per share free of income tax, payable on May 10, leaving 47½ to be carried forward.

The proposition was seconded, and carried unanimously.

Mr. WEST (a member of the committee) referred to the resolution passed at the last general meeting that a substantial testimonial should be presented to the secretary for the services he has rendered in the resuscitation of the mine, and moved that 300l. be presented to him in recognition thereof. Under the present circumstances, and considering the present condition of the mine, the committee had not deemed it right to vote a larger sum, but it was their intention to supplement this amount by a voluntary contribution among the shareholders; this contribution the committee intended to head with a donation of 45l.

Mr. DODD seconded the proposition; and, speaking as a large shareholder, corroborated what had fallen from the previous speaker.

A SHAREHOLDER objected to any amount being taken from the funds of the mine, adding that it ought to come as a voluntary subscription.

Mr. HEARD said the committee had felt for some time some doubt as to whether they should not invite the whole body of shareholders to voluntarily subscribe, or whether the committee should name and fix a sum, to be submitted to a general meeting for confirmation. In view of those two opposing opinions they had come to a sort of compromise in the matter.

The SECRETARY would be very sorry to receive a single penny if it were objected to by the shareholders, and he would promise if the resolution was passed he would return their proportion to objecting shareholders.

Mr. F. E. BINGLEY said—Mr. Chairman: So far am I from agreeing with the gentleman who has just said that I am a little surprised, Sir, after all that was said at the last meeting of shareholders in this room, and the opinions I have heard expressed outside, that so small a sum as 300l. should have been proposed as a fitting testimonial to Mr. Sharp. If I remember rightly it was Mr. Heard who on that occasion said "Let this matter be considered by the shareholders during

the next three months, and then let them give him a substantial testimonial, such as Sharp has rendered to this mine." Another gentleman, Mr. Dodd I think it was, followed in a similar strain, and concluded his remarks by admitting more distinctly and emphatically that "Mr. Sharp had saved the mine." Now, gentlemen, it appears to me that it is not quite understood what is comprised in those few words "Mr. Sharp has saved the mine," or you would scarcely present that inadequate testimonial for such services. For it must be patent to all present that the mine was fast going to ruin; instead of which, by an amount of pluck, perseverance, and foresight, which are rarely witnessed under such discouraging circumstances, Mr. Sharp was the means of not only rescuing the mine from its impending fate, but he has succeeded in restoring it to a state of prosperity. Now, gentlemen, I do think, with the knowledge of these facts before us, it would only be right services by a liberal testimonial. I believe that Mr. Sharp has set his mind upon still doing great things for this mine, and that if he be allowed to carry out his plans, the history of mining enterprise that required such men as Mr. Sharp would be in the front, with all the energy and skill they possess, it is now—when this great mine more than from lax and inefficient management. Let such men know and feel that their services are fairly appreciated, and be more appreciated by capitalists than ever has been in its most palmy days. Once let it be known that men of capacity, judgment, and integrity take an active interest in the management of these great sources of wealth, and you will find that some of the millions that have been accustomed to go annually into foreign loans will instead flow into the mine and more profitable channel of investment in British lead mines. But let it not be said that the West Chiverton shareholders have failed properly to recognise such services as have placed their property in its present satisfactory and prosperous position. In making these remarks, Sir, I wish it to be understood that I do not detract from or undervalue the services of the committee, nor of the able manager, Capt. Southey, but I believe it is fully admitted that to Mr. Sharp more than any other individual the shareholders are indebted for the resuscitation and recovery of their property.

The CHAIRMAN, in putting the resolution, bore testimony to the value of the services rendered by the secretary. Having to some extent fought the battle of his life, he was in a position to speak on this point. The sum proposed to be voted to the secretary did not exceed 2s. per share.

The resolution was put, and carried unanimously.

The SECRETARY was very much obliged for the vote. The labourer was worthy of his hire they all admitted. He must say that had he not taken the steps he had done the mine would not have been a mine to-day. He contrasted the former workings, and showed the great strides made in sinking the shafts. He believed they were laying out a splendid mine for the shareholders.

A vote of thanks to the Chairman and committee closed the proceedings.

EAST CHIVERTON MINING COMPANY.

A general meeting of shareholders was held at the offices, Gresham Buildings, on Wednesday, to pass the accounts for 16 weeks ending Feb. 26, to receive the report of the agent, to make a call for the further prosecution of the mine, and for the transaction of any ordinary business of the company.

Mr. E. HILTON in the chair.

Mr. GRANVILLE SHARP (secretary) read the notice convening the meeting; the minutes of the last meeting were confirmed.

The accounts for the 16 weeks ending Feb. 26 showed a d balance of 5274 18 9d.

The CHAIRMAN expressed a hope that the mine would be brought to as great a success as West Chiverton.

The SECRETARY explained that there had been paid one more month's cost since the accounts were made up.

Mr. SMITH asked the amount of the debit balance, including this month's cost?

The SECRETARY said the month's cost was 140l., which made the debit balance 622l. 10s. 6d. To meet this 41½ tons of tin have been sold at an average price of 42l.—from 44l. 7s. 6d. to 40l. 7s. 6d.—1875 15s. 7d.; copper, 98l. 15s., less 60l. credited on account, 6l. 15s.; sundries, 4l. 13s. 9d.; total receipts, 1847 14s. 9d. This leaves a loss on the four months of 755 6s. 5d. added to this 564 2s. 2d., a balance brought forward from last account, and there is a total unfavourable balance of 1319 8s. 7½d. A call of 12l. per share will make in two equal instalments, the lords are again thanked for continuing to relinquish their dues. The price of tin is 6l. 5s. a ton less than at the previous account, and 22l. per ton below the average price of all the tin sold from the mine, extending over a period of 44 years, the lowest price Providence Mines have received for tin since 1844 being 40l. 7s. 6d.

The present very low price of tin is the lowest we have received since 1844, and is over 22l. per ton less than the average price of all the tin sold from the mine, extending over a period of 44 years. The large increase in supply from Australia and other countries has led to this great decline. The present price cannot be remunerative to the majority of the producers abroad more than at home, hence falling off in supplies may be calculated on, and an improvement in the price expected. A larger yield of tin from these mines would follow a better price at home; now unremunerative might then be worked. Notwithstanding the great and continued depression we have been labouring under, it is nearly two years since the last call (Jan. 24, 1874), and it is hoped the adventures will readily respond to the one now made, as the mines are still considered to be a very valuable property.—Penzance, April 25.

ELW. TAYLOR.

April 25.—Haw's Shaft: This shaft is sinking below the 56 by six men, at 15l. per fathom (now 2 fms. below the level); the lode in it is 1½ ft. wide, producing saving work for tin, and has a very promising appearance for improving. The 56 is driving west by four men, at 5l. per fathom; the lode is at present producing good stones of tin, driven from shaft 18 fms.; the first 15 fms. opened good tin ground; we expect this end will improve in 2 fms. more judging from the above, where we passed through a piece of tin ground for 5 fms. from shaft 12 fms. good tin ground again. The 56 is driving east by four men, at 3s. per fathom; the lode here is not yet clear of the cross-course, we think it will improve as it is extended east, as there is a good lode in a winze below the 48. The 48 is driving east by two men, at 7l. per fathom; here the lode is 2 ft. wide, worth 5s. per fathom, driven from the cross course 23 fms. There is a winze sinking below this level by four men, at 10l. per fm.; here the lode is 2 ft. wide, worth 15l. per fathom; the winze is 5 fms. in advance of the 56 end, and where hole it will lay open good piece of tin ground for stopping. The 48 is driving west by four men, at 12l. per fathom; here the lode is 3 ft. wide, worth 20l. per fm., driven from shaft 25 fms. through tin ground, except 5 fms. of unproductive, and is now the most westerly point in this part of the mine. There are 40 men on this lode on tribute, at 12s. in 12.—Higg's Shaft: Here our tinwork operations are limited to the driving, rising, and sinking in the 75 on a carbon by 12 men, at 10l. per fathom; the lode here is 3 ft. wide, and worth, on the whole, 20l. per fathom, opened on 5 fms. in length, it is in whole ground, and very similar to our old rich carbonates; should it prove one, it will materially increase our returns of tin. There are 23 men on tribute, at 15s. in 12, in this part of the mine.—W.M. HOLLOW, R. ROGERS.

A special meeting was then held for submitting a resolution forfeiting shares in arrears of call, but subject to restoration if the calls be paid before May 10.

The resolution was passed, to be formally confirmed at a special meeting held within one month.

A vote of thanks to the Chairman closed the proceedings.

THE PROVIDENCE MINES.

The mine account for four months was held at the mine on Tuesday. Labor, for 16 weeks to April 7, cost 20174 6s. 9d.; materials to end of March, 333; 408½ tons of coal, at 13s. 10d., a ton, 5411 10s.; landings dues, 257 4s. 1d.; total expenditure, 20962 11s. 2d. To meet this 41½ tons of tin have been sold at an average price of 42l.—from 44l. 7s. 6d. to 40l. 7s. 6d.—1875 15s. 7d.; copper, 98l. 15s., less 60l. credited on account, 6l. 15s.; sundries, 4l. 13s. 9d.; total receipts, 1847 14s. 9d. This leaves a loss on the four months of 755 6s. 5d. added to this 564 2s. 2d., a balance brought forward from last account, and there is a total unfavourable balance of 1319 8s. 7½d. A call of 12l. per share will make in two equal instalments, the lords are again thanked for continuing to relinquish their dues. The price of tin is 6l. 5s. a ton less than at the previous account, and 22l. per ton below the average price of all the tin sold from the mine, extending over a period of 44 years, the lowest price Providence Mines have received for tin since 1844 being 40l. 7s. 6d.

The present very low price of tin is the lowest we have received since 1844, and is over 22l. per ton less than the average price of all the tin sold from the mine, extending over a period of 44 years. The large increase in supply from Australia and other countries has led to this great decline. The present price cannot be remunerative to the majority of the producers abroad more than at home, hence falling off in supplies may be calculated on, and an improvement in the price expected. A larger yield of tin from these mines would follow a better price at home; now unremunerative might then be worked. Notwithstanding the great and continued depression we have been labouring under, it is nearly two years since the last call (Jan. 24, 1874), and it is hoped the adventures will readily respond to the one now made, as the mines are still considered to be a very valuable property.—Penzance, April 25.

ELW. TAYLOR.

April 25.—Haw's Shaft: This shaft is sinking below the 56 by six men, at 15l. per fathom (now 2 fms. below the level); the lode in it is 1½ ft. wide, producing saving work for tin, and has a very promising appearance for improving. The 56 is driving west by four men, at 5l. per fathom; the lode is at present producing good stones of tin, driven from shaft 18 fms.; the first 15 fms. opened good tin ground; we expect this end will improve in 2 fms. more judging from the above, where we passed through a piece of tin ground for 5 fms. from shaft 12 fms. good tin ground again. The 56 is driving east by four men, at 3s. per fathom; the lode here is not yet clear of the cross-course, we think it will improve as it is extended east, as there is a good lode in a winze below the 48. The 48 is driving east by two men, at 7l. per fathom; here the lode is 2 ft. wide, worth 5s. per fathom, driven from the cross course 23 fms. There is a winze sinking below this level by four men, at 10l. per fm.; here the lode is 2 ft. wide, worth 15l. per fathom; the winze is 5 fms. in advance of the 56 end, and where hole it will lay open good piece of tin ground for stopping. The 48 is driving west by four men, at 12l. per fathom; here the lode is 3 ft. wide, worth 20l. per fm., driven from shaft 25 fms. through tin ground, except 5 fms. of unproductive, and is now the most westerly point in this part of the mine. There are 40 men on this lode on tribute, at 12s. in 12.—Higg's Shaft: Here our tinwork operations are limited to the driving, rising, and sinking in the 75 on a carbon by 12 men, at 10l. per fathom; the lode here is 3 ft. wide, and worth, on the whole, 20l. per fathom, opened on 5 fms. in length, it is in whole ground, and very similar to our old rich carbonates; should it prove one, it will materially increase our returns of tin. There are 23 men on tribute, at 15s. in 12, in this part of the mine.—W.M. HOLLOW, R. ROGERS.

A special meeting was then held for submitting a resolution forfeiting shares in arrears of call, but subject to restoration if the calls be paid before May 10.

The resolution was passed, to be formally confirmed at a special meeting held within one month.

A vote of thanks to the Chairman closed the proceedings.

ELW. TAYLOR.

April 25.—Haw's Shaft: This shaft is sinking below the 56 by six men, at 15l. per fathom (now 2 fms. below the level); the lode in it is 1½ ft. wide, producing saving work for tin, and has a very promising appearance for improving. The 56 is driving west by four men, at 5l. per fathom; the lode is at present producing good stones of tin, driven from shaft 18 fms.; the first 15 fms. opened good tin ground; we expect this end will improve in 2 fms. more judging from the above, where we passed through a piece of tin ground for 5 fms. from shaft 12 fms. good tin ground again. The 56 is driving east by four men, at 3s. per fathom; the lode here is not yet clear of the cross-course, we think it will improve as it is extended east, as there is a good lode in a winze below the 48. The 48 is driving east by two men, at 7l. per fathom; here the lode is 2 ft. wide, worth 5s. per fathom, driven from the cross course 23 fms. There is a winze sinking below this level by four men, at 10l. per fm.; here the lode is 2 ft. wide, worth 15l. per fathom; the winze is 5 fms. in advance of the 56 end, and where hole it will lay open good piece of tin ground for stopping. The 48 is driving west by four men, at 12l. per fathom; here the lode is 3 ft. wide, worth 20l. per fm., driven from shaft 25 fms. through tin ground, except 5

MINING PROGRESS IN NOVA SCOTIA.

We have received the Report of the Department of Mines for 1875,* and Mr. A. HEATHERINGTON'S Annual Statistical Exhibits of the Gold Yield.† The former, as an official document, claims our first attention, although the latter in its speciality is not less authentic or valuable, and will be duly reviewed in its turn.

It may be interesting to note that the departmental report has undergone some change of late years in its form of preparation, for at one time the Commissioner of Mines used to preface it with his remarks on the condition and prospects of each district, which were again supplemented by the Inspector with details of work accomplished and in progress. Since 1872 the reports have been written, published and in progress. Since 1872 the reports have been written, published and in progress. Since 1872 the reports have been written, published and in progress.

Deviating merely from its arrangement of matter, we give below some of the most important statements contained in this last report.

THE COAL INTEREST.

SALES.—The total sales from 1785 to 1875, inclusive, amount to 13,785,503 tons, to which if the colliery consumption—estimated at 13 per cent., or 1,792,505 tons—be added the quantity raised in 91 years is represented by 15,581,008 tons. The gradual expansion of the trade is best shown by the following summary of sales:—

Years	Tons
1785-1790	14,349
1791-1800	51,048
1801-1810	70,452
1811-1820	91,527
1821-1830	140,820
1831-1840	839,981
1841-1850	1,533,798
1851-1860	2,399,829
1861-1870	4,927,339
1871-1875	3,719,360

The total sales for the past year were 706,795 tons—a decline of 174,311 tons on 1873, the most prosperous year of all. The chief decline was in the trade with the United States and the West Indies, as appears by the subjoined abstract:—

Markets	1874.	1875.	Increase.	Decrease.
Nova Scotia	214,965	212,630	—	2,335
Quebec	182,289	189,754	7,465	—
United States	138,335	89,746	—	48,589
New Brunswick	78,841	85,938	7,097	—
Newfoundland	55,696	62,348	6,652	—
Prince Edward Island	41,948	43,641	1,693	—
West Indies	47,844	16,429	—	31,415
South America	6,077	4,779	—	298
East India	4,152	1,903	—	2,249
Great Britain	4,152	497	—	3,655
Total	749,127	706,795	—	42,332

The decline in the home consumption of native coal is accounted for in part by the importation of anthracite, which appears to be gaining favour for use in furnaces and hall stores; the diminution of sales to the United States by the local royalty of 10 c., and the import duty of 75 c. a ton; and, further, of the sales there and to the West Indies, and to the neglectful condition in which the cargoes often have been shipped. The Inspector reminds the Nova Scotian colliery owners that coal which has lain exposed to the weather for months past on board, still wet, and broken small by dropping 20 to 30 ft. into the hold of a vessel, is not likely to compete with the well-sorted dry lump coal of the American and English collieries, and if they wish to secure a market more care must be taken in the loading. The sales to the neighbouring provinces have steadily increased, rising from 163,577 tons in 1871 to 381,711 tons in 1875.

PROSPECTS.—No improvement is looked for in the foreign trade in 1876, but if certain works in contemplation by the Steel Company of Canada should be completed, it is expected that they will require about 100,000 tons additional, which will figure under home consumption. In view of the competitions among the American gas coal miners, the increased facilities they now have for putting their product into the markets on the Atlantic, and the prohibitory duty, an increase of trade with the United States is unlikely. The Inspector, however, states that gas producers there are still of opinion that an admixture of Nova Scotia with United States coal is advantageous, and he estimates that were competition permitted one-tenth of the quantity annually consumed in New York and the New England States would be provincial coal.

GAS COAL.—The Inspector takes exception to the statement that Nova Scotia coal contains much more sulphur than the American gas coals, more particularly one imputed to Prof. Chandler, of the Columbia School of Mines, made before the Gas Light Association of New York, Oct. 20, 1875, ascribing to the Glace Bay, Lingan, International, &c., coals, from 3 to 5 per cent. of sulphur, and in refutation thereof refers to a table of 45 analyses, wherein only two varieties are shown to contain over 3 per cent. of this deleterious adjunct.

LABOUR.—On an average coal was drawn from the pits only on 136 days during the year, on account of the depression of the trade, the greatest distress prevailing in Cape Breton. The French miners, specially imported by the General Mining Association, have mostly all left.

COMBINATION OF COAL OWNERS.—The Inspector under this head throws out an excellent suggestion, which, if acted upon, would prevent wasteful rivalry, and give the colliery proprietors influence as a body. He shows the foolish extravagance of the parallel railways at Middle River, Pictou, Westville, and at Sydney, and of the two artificial harbours at Glace Bay, and the two breakwaters at Cow Bay, on which at least 300,000 have been expended, that a combination of interests and friendly understanding would have saved. The employment of steam colliers, and appointment of a general sales agent, are also proposals worthy of earnest consideration.

MACHINERY.—The use of direct-acting pumping-engines, the Inspector states, has of late years rapidly increased, as they command themselves on account of their low first cost and the greater convenience they afford for extracting water from deep workings; they are not only used as subsidiary aids to the main pump, but in some cases as the only appliance for freeing the entire workings from water. The efficiency of Cameron's special steam pumps for shaft work in skilled hands is also referred to, and the advantages in many cases of hydraulic engines, and for the main set of compound engines. The Inspector also comments on the superiority of the electric signalling system over that by wire or the ordinary lever, and gives the cost of the Radcliffe telegraph and the magnet inductor in combination with an alarm of Messrs. Siemens Brothers. An American diamond drill, employed at the Joggins Colliery, bored a hole 1028 ft. deep in 47 days, the whole expenses—the machine being worked night and day by a man and a boy on each shift—including the moving of the machine, railway freight, and fares, erecting derrick, fuel, labour, &c., amounting only to \$937, so that, allowing 50 c. per foot for wear and tear, the average cost was only \$1.41 per foot. In 1874, 534 ft. were sunk in 24 days at an average cost of \$1.14 per foot. The cost of the machine was \$5000; the size of bore-hole is not stated. The English diamond drill, mentioned in last year's report, has been sent out of the country; it was employed in sinking one bore-hole 350 ft., and another 500 ft. deep, the latter being accomplished in 22 working days.

UNFENCED PITS AND EXCAVATIONS.—On this score there appears to be trouble growing, more particularly in the gold districts, where the early system of allotting claims only 20 by 50 ft. in size necessitated the recurrence of absurdly numerous shafts, but the propriety of making the new leaseholders bear the expense of fencing them when the department was the cause of their existence is not exactly apparent.

ACCIDENTS.—It is satisfactory to note that there were but two fatal accidents in the coal mines, although there were 18 resulting in injuries more or less serious, principally owing to the negligence of the miners themselves; of these ten were through gas explosions, one

through a boiler explosion, three by falling of stone and rubbish, three in the stopes, and one in a shaft. We pass over the instructive details concerning the progress at each separate colliery, and take up the Inspector's review of—

THE GOLD INTEREST.

"Gold mining alone," says the report, "shows a slight improvement." The first rally that has taken place since 1870, and the second since the highest point of production—27,533 ozs.—was reached in 1867, and the increase of more than 2000 ozs. over the yield of the previous year holds out hopes that with careful management there may yet be a revival of this which promised to be an important industry. "It is gratifying to know," adds the Inspector, "that the principal miners are of opinion that the current year will show a further increase."

To the report is appended a general annual summary and a recapitulation of the yearly produce of each district from 1862 to 1875 inclusive, with columns showing the daily and yearly average yield per man. Acknowledgment is made of Mr. Heatherington's compilation of data for the period anterior to 1862, but not of his annual Statistical Exhibit, which has anticipated the department's tardily published recapitulation by many years, and is more generally known to the extra provincial press and writers on political economy. This remark is needed in justice to one who for a long time has devoted intelligent labour and considerable means in spreading information concerning the gold industry in a form the utility of which the authorities evidently admit by its adoption. This reluctance of the Nova Scotians to accord merit to private enterprise when its author is only among but not of them stands in peculiar contrast with the generous action of the Australian colonies towards their pioneers, explorers, and industrial writers.

The Inspector refers to the advantage of prohibiting the sale of intoxicating liquors in the gold districts, as their use is a great incentive to dishonesty. He estimates the amount of gold stolen and surreptitiously mined at only 2 per cent. of late years, which would not, however, affect Mr. Heatherington's average of 10 per cent. if the former statements of the Commissioners and other investigators are correct. The general results both for 1875 and for the past 15 years have already been published in the Journal of March 18, in the correspondence of our contributor "Acadians."

The official report has adopted a new year, we observe, of 300 working days, but as gold miners when remunerative employment offers do not even observe Good Friday or Christmas Day, the principle upon which the labouring year is curtailed of 12 days is not quite apparent. Nor is it easy to understand why the gold should only be valued at \$18 per ounce, when it realises in this market over 40s., and the Inspector gives the average at \$19.22, which is equal to 3s. 19s. It is not a matter of moment now, but when the production has doubled, and the importance of this industry is better recognised, every item in its favour should be correctly stated.

The mere number of hours running of the stamps will not show their effective duty, as the report would seem to indicate. We require to know in addition the weight, height of drop, size of screw holes, and speed, or number of drops. These are points, however, which are only learnt by practice.

[To be concluded in next week's Mining Journal.]

FOREIGN MINING AND METALLURGY.

French industrialists are accommodating themselves little by little to the situation; and if they are not more contented, they are, at any rate, more resigned. The current of orders for iron is pretty well maintained; it is true that these orders are small in amount, and that prices are also small; but, nevertheless, the instructions received are gladly executed in the absence of any of a better description. Prices may be said to be stationary in the French iron trade; they neither rise nor fall. Pig has resumed its old quotations, after a fruitless attempt to establish an advance. An association of steam-engine proprietors has just been formed at Paris, the objects of the new association are—1. The prevention of accidents. 2. The realisation of economies in the production of steam. To attain the latter object analyses are to be made of water and combustible, and lessons are to be given in stoking, &c. The society, of which M. Maurice Jourdain is the directing engineer, has already the control of upwards of 150 engines. Under good management the new association may clearly render valuable services to French industry. The Comptoir and Fourchambault Company has announced a dividend of 2s. 8s. per share for 1874-5.

The Coal Export Committee at Dusseldorf report that there is every probability that the German Government will before long decide to use German coal in the Imperial Navy instead of English. The leading officials are already disposed to favour the idea if experiments with Westphalian coal, which it is proposed to institute at Wilhelmshaven, give a satisfactory result. The committee maintain that Westphalia can supply every description of coal which is at present obtained from the North of England or from Cardiff, for the use of the German vessels. In order to hasten forward the projected experiments the committee have decided to ask certain pit-owners, members of the Association, to supply to the Imperial wharf at Wilhelmshaven a wagonload of stone coal for trial.

The French coal trade remains extremely quiet. The weeks glide on, but the state of affairs scarcely varies. A coal congress is to be held at Douai, Jan. 5. A similar gathering took place last year at St. Etienne; numerous industrial questions were then discussed, and it is expected that this year's proceedings will be of even more importance. An official enquiry has been held and completed upon a project matured by M. de Lagrange for the improvement of the navigation of the Seine. This project is one of considerable interest to Belgium, as if Paris were made a seaport English coal would be delivered much more cheaply in the French capital. Timber, iron, pig iron, &c., would also be delivered more readily and cheaply from the northern French departments. As France is the principal foreign outlet for Belgian coal, Belgian industrialists cannot regard the enterprise of M. de Lagrange with indifference. With reference to coal concessions remaining unworked in the department of the Nord, the departmental mining engineer, in reporting to the Departmental Council General on the state of local mineral industry in August, 1875, showed that there were three unworked colliery concessions in the department—viz., Hasnon, Breuille, and Chateau-l'Abbaye, belonging to the Anzen and Vieoigne Companies. Some mining engineers were charged with the task of furnishing complete information as to the value of these unworked concessions, and it appears from their reports that they contain little or no coal, and that they could not be worked without great expense and some loss. The net profits of the Loire Mines Company for 1875 amounted to 84,731l., or 25,128l. less than the corresponding total for 1874. The amount paid in dividends for 1875 is 57,600l.

The Belgian coal trade remains inactive; it is considered, however, that the present depression in affairs will prove only temporary, the season at which contracts are ordinarily renewed having now arrived. The stagnation is general in the various coal basins, except as regards some more favoured collieries which generally dispose of their products tolerably readily. There are complaints of foreign competition, and, upon the whole, the situation cannot be said to be favourable. The directors of the Gosson-Lagasse Collieries Company report that the total production for 1875 was 228,320 tons, against 218,213 tons in 1874, showing an augmentation of 10,007 tons last year. The cost of production last year was 2/4d. per ton less than in 1874, the selling price was 9d. per ton less. The profit realised for 1875 was 31,612l., of which 28,800l. had been distributed in dividends. The reserves formed by the company for the year amount to 18,000l.

A resumption of activity in the Belgian iron trade is still one of the eventualities of the future. Work does not absolutely make default at the principal establishments, but prices are very low, and leave only insignificant profits to producers. Thus the Acoz Forges Company recently undertook to supply three lots of iron rails, with fish-plates, at 6s. 3d. 3d. per ton. Other similar facts might be cited to show that Belgian industrial establishments consider it necessary to procure work at almost any price. Thanks to the improved machinery which the Belgian works have at their disposal, orders are now executed with such rapidity that it has been necessary to make efforts to obtain them. M. Elbard, the managing director of the Belgian Railway Plant Consolidated Company, has just returned from Russia, where he has secured orders for several hundred goods trucks and passenger carriages, as well as an iron bridge. A number of Liège industrialists have formed themselves into a syndicate in conjunction with some Brussels firms, with the view of establishing commercial relations abroad, and especially with Chili and Brazil. The Steenay forges, in the Meuse, which were recently purchased by a group of Liège industrialists, have just been brought into activity. The Government of Algeria has been inviting capitalists to undertake the working of iron minerals in French Africa upon a large scale than hitherto.

The tone of the Paris copper market has exhibited a slight improvement. Chilean in bars, delivered at Havre, has made 83s.; ditto ordinary descriptions, 81l., ditto in ingots, 86s.; English tough cake, 85s.; and pure Corocoro minerals, 83s. per ton. The German copper markets have generally remained quiet. Tin has been rather ne-

glected, and quotations have continued feeble. Banca, delivered at Havre or Paris, has made 88s.; Straits ditto, 78s.; and English, delivered at Havre or Rouen, 74s. per ton. The Rotterdam tin market has been quiet, and prices have slightly given way. Some transactions have taken place in Banca at 48s. to 48 1/2s. Billiton has brought 44 1/2s. with delivery in Paris, while disposable has made 44 1/2s. There has been little doing in tin upon the German markets. Lead has presented a slightly better tone at Paris. French, delivered at Paris, has made 22s. 4s.; Spanish, delivered at Havre, 22s.; English, delivered at Havre, 22s.; and Belgian and German, delivered at Paris, 22s. 12s. per ton. The German lead markets have been weaker. Zinc has been well supported at Paris. Silesian, delivered at Havre, has made 25s. 8s. Other good marks, delivered at Havre or Paris, have made 25s. 4s. per ton. The German zinc markets have remained inactive.

FOREIGN MINES.

ST. JOHN DEL REY.—Telegram, April 22: Profit for month of March, 13,700l. **CHICAGO (Silver).**—W. S. Godbe, April 7: Owing to the roads, which were almost impossible for loaded wagons, on the 28th ult. the furnace stopped for want of ore. On the 1st inst., however, it resumed, and there is now every probability of its continuing. There were then (23rd ult.) 90 tons of bullion at the works, the lowest workings (No. 1 switch), where it has greatly improved, the ore ranging from 2 to 5 ft. in thickness, and continuing for some hundreds of feet in length. The vein of rich ore in No. 2 back switch, near bottom of main incline, continues to develop satisfactorily, about 24,000 lbs. of ore, assaying over 135 ozs. to the ton, were sent to the furnace last month, and a greater quantity may be expected this month. New hoisting works have now become a necessity, and have been ordered from New York.

CHICAGO (Gold and Silver).—L. Chalmers, April 3: I am particularly busy just now. I have been running on 330 ore until I get things in shape, which I have almost succeeded in doing, and will this week give the mill a taste of better quality. Nearly all my ore was down to the mill before I made the rich discoveries, but with an O'Hara, or similar furnace, it will pay well. I require six more miners. Mine looking well.

PANULCILLO COPPER.—Following a practice recently adopted, Mr. Alexander, the secretary, has forwarded a statement of accounts for the half-year ending Dec. 31, which will be included in the yearly accounts to be submitted at the general meeting in November. The operations in the first half of the current financial year have resulted in a net profit of 13,302l. 1s. 3d. As compared with previous financial year the improvement arises from economies of cost, by cheaper fuel and lower general charges, and from better price received for the company's production: 3172 tons of regulus were produced at Panulcillo in half-year ending Dec. 31 last, containing 1452 tons copper, contents by analyses; the prices realised 81s. 72 per quintal metrico. The mining report for the half year will be considered, on the whole, as of a satisfactory character.

CAPE COPPER.—Colquhoun, Capt. Tonkin, Feb. 29: The 80 fm. levels have not materially changed since last report. The stope in back of the 80 continues to look well, and the copper ore is very rich in quality; in fact, the richest ore drawn up to the surface is taken from this stope. The 68, east from No. 13 winze, failed lately, and at one time the end looked rather poor, but the forebore of the driving is now showing signs of improvement, and we hope in a few days to have good ore ground again. The present end of the level is worth 3 1/2 tons per fathom. We are still opening out the stopes in the above-named level in a very satisfactory manner, and we are drawing heavily from this part of the mine to keep up the monthly returns. In the 25 fm. level we continue to open out the stopes north from No. 11 winze and south from No. 14, and at both points the ground is turning out very well indeed; these places will yield large quantities of moderate percentage copper ore for a considerable period. I have no particular remarks to make respecting the various other points throughout the mine, as they are producing the estimated quantities of copper ore, and, on the whole, look well.

Spectacle, Capt. Tonkin, Capt. Ninnis, Feb. 25: In bottom of the 36 north, from incline, the ground has become very poor, consequently we have suspended the stope, and started to drive a level as a further trial. The stope in bottom of the 36, west of flooken course, yields copper ore of very good quality, and the ground looks somewhat promising. The other stopes have fluctuated a little in value, but the nature of the ground remains about the same as for some time past. The 27 fm. level east, from flooken course, is unproductive, but the ground seems worthy of a good trial.

Trials Mines, Capt. Tonkin, Capt. Lanksbury, Feb. 15: The Karolusberg Mine has not undergone any changes worthy of notice since last report. The 10 fm. level continues to yield some good stones of copper ore, and the ground of the 36, neighbourhood is, in my opinion, well worth a vigorous trial. At Nabheep we have communicated the shaft in the bottom of old workings with the 17 fm. level, and the shaftmen are now engaged in cutting pit. The ground that we have driven and sunk through has yielded some good copper ore, but scarcely enough to value, at the same time we have a good heap of stuff assorted and put aside for dressing. From the cross-cut at Kildunna we have lately taken out some stones of ore that assayed 31 per cent., still I cannot report that the place has a very encouraging appearance. The 20, driving from the bottom of shaft at Nappah, has improved, and we have taken out some copper pyrites from the end of the driving, that assayed 24 per cent.

Returns for February: Yield from Ookiep, 880 tons of 29 per cent. From Spectacle, 52 tons of 29 per cent.—Bills of Lading Received: 199 tons of ore from European and 380 tons per Teuton.—Arrival at Port Nolloth: The Towry, to load about 500 tons of ore.—Arrivals at Swanset: The Ocean King, Martha Stevens, and Cyrus.—Sales by Public Ticketing: 512 tons of ore and regulus on 11th inst., at an average of 18s. 6 1/2 d. per unit, realising approximately 12,000l.—Put Forward for Sale: 640 tons of ore on 25th inst.

BENSBERG.—C. Craze, April 24: Last week we fixed the small Hayward-Tyler pump in Victoria shaft, which enabled us to fork to a greater depth than for some weeks before, and up to last night were nearly deep enough for fixing the large pump (which has been sent to the foundry to be newly bored and fitted with two new brass rings, &c.) as a permanent auxiliary; but I am sorry to say that the small boiler sprung a leak last night, so that we are obliged to turn it idle to repair, which will take us about two days, and with the other boiler we cannot raise steam sufficient to keep the water under; however, we will strain every nerve to get the boiler repaired as soon as possible, and hope to do so in time to fix the large pump, and fork the bottom of the mine this week. The ground in the 14, east of shaft, is not quite so hard, and the lode here contains a little lead, mixed with very fine pyrites; it is not unusual for the lode to make these nests of pyrites, and we look for an improvement again to the east of this. There is not much change in the 14 west; the lode is producing about 1 1/2 ton of ore per fathom.

[For remainder of Foreign Mines, see to day's Journal.]

EXPLOSION OF DYNAMITE.—A fearful explosion of dynamite resulting in the death of 13 persons and injury of two others, has occurred in the new railway tunnel now being driven at Cymmer, near Maesteg, South Wales. Two men and a boy, one being the man who was preparing the charge of dynamite, appear to have been totally annihilated, not even their bodies having been found. The tunnel in which the calamity occurred is to be nearly a mile long, and rather more than a fourth of the distance has already been driven by the Diamond Rock Boring Company, the operations being carried on night and day. When the night shift had been at work two or three hours Richard Parsons set about preparing a charge, and a few minutes afterwards the explosion occurred, 30 persons being in the tunnel at the time. At the inquest, on Saturday, Major Beaumont, M.P., chairman of the Diamond Rock Boring Company, the contractors, volunteered a statement which, although forming no part of the evidence, was interesting. He stated that the charge of dynamite was about 220 yards in length, and was intended for blasting a man to get in when a tram was passing; on the other side a similar cavity, in which was placed a quantity of dynamite sufficient to supply the men for a day's blasting. From this store the advance men fetches supplies as required in a box, and takes it to the man about to use it. The dynamite is of a reddish colour, resembling putty in appearance, and made up into cartridges, something like a horse ball, only longer. A piece of fuse with a cap on the end of it is inserted into the dynamite, and the dynamite put into the hole about to be blasted. The end of the fuse is then ignited, fires the cap, and the dynamite explodes. This explosive is used in damp places, where powder cannot be employed. There is a man alive named William Lewis, a striker, who a few minutes before the explosion occurred saw the man Richard Parsons, whose body is not found, sitting by the dynamite box, and his candle stuck in a piece of damp clay within about 6 in. of the dynamite box, and it is supposed that while in the act of making up the cartridge the candle must have fallen and ignited the fuse, and caused the dynamite to explode. The practice of sticking their candles in close proximity to the dynamite box is one for which the foremen have frequently been faulted with the men. There was in the store about 150 lbs. of dynamite, about 10 lbs. of gun-cotton, and some caps—just a day's stock.

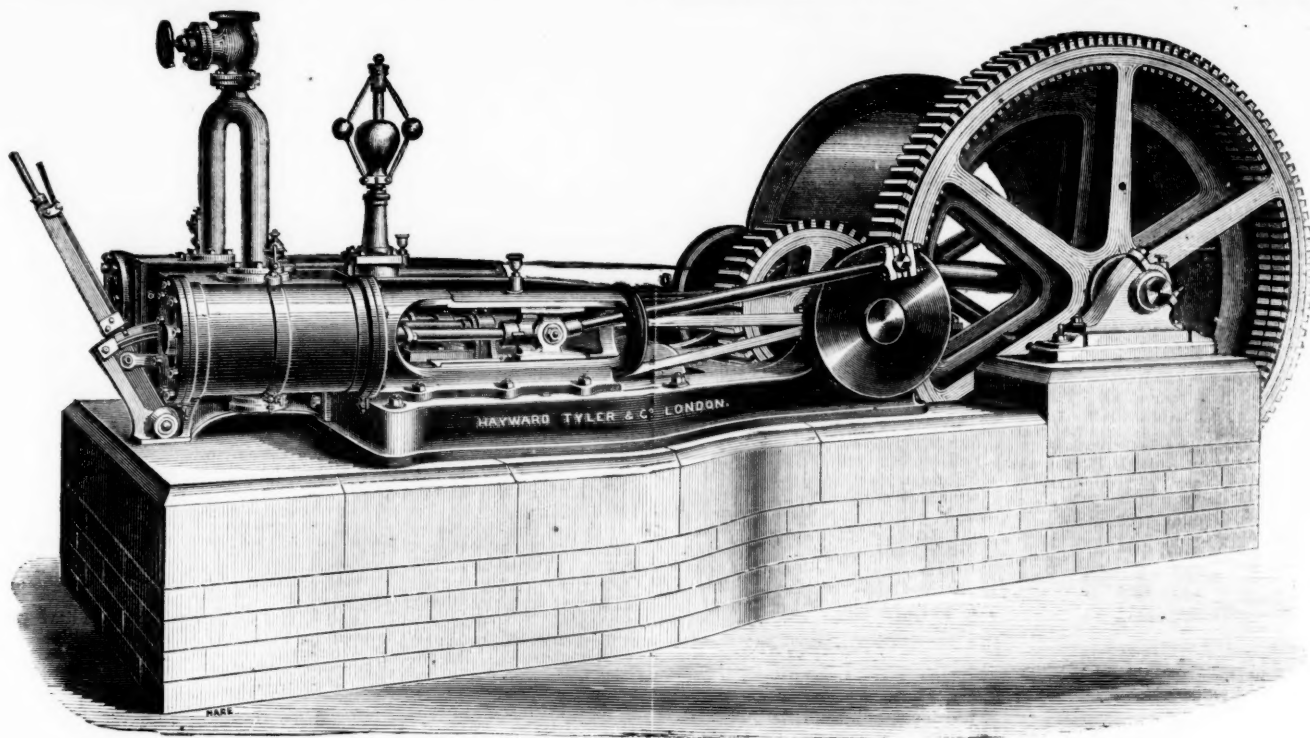
ROTARY STEAM-ENGINES.—Some important improvements in single and compound rotary steam-engines have been invented by Mr. J. McKim, of Scotland. The single engine employs an axle with a single crank, by means of which is bolted to a bed-plate, which supports a hollow annular steam-chamber, provided with inlet and outlet ports; the inner circumference of the chamber is slotted throughout to allow of the passage of a lever carried by the axle, the lever has a piston at its outer end, which is revolved in the chamber by steam pressure, the slotted circumference forms a seating for a ring-valve, which is closed steam-tight by a combination of springs; there are levers or tappets on the axle to operate the slides of the inlet and outlet ports. A compound engine consists of similar parts, operated by the exhaust steam from the first engine.

HOLLOWAY'S OINTMENT AND PILLS.—A perusal of this paragraph may save many from much future suffering. All persons afflicted with bad legs, sores, ulcers, and other diseases, who from want of means and other reasons cannot avail themselves of surgical treatment, may relieve themselves from their complaints by using Holloway's purifying, soothing, and healing remedies. In every outward ailment this wonderful ointment brings about the most beneficial result by preventing congestion in the vessels of the skin, and thus effacing the first and most frequent cause of inflammation. Internal pains, rheumatic and gouty tortures, scrofulous swellings, and contracted sinews may be overcome by diligently rubbing this cooling unguent into the skin.

* "Report of the Department of Mines, Nova Scotia, for the year 1875." By the Government Inspector of Mines, H. S. POOLE, F.G.S., Assoc. R.S.M., &c.
† "The Gold Yield of Nova Scotia—Annual Statistical Exhibit." By A. HEATHERINGTON, F.G.S.

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IMPROVED WINDING ENGINE, with Automatic "Cut-off" Gear.

EXTRACT FROM "COLLIERY GUARDIAN."

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Jigger Bottoms and Cylinder Covers woven ANY WIDTH, in Iron, Steel, Brass, or Copper.

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H. R. and Co. are now supplying DIRECTION LABELS, subject to 30 per cent. discount off List Prices.

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SAFETY FUSE,
FIRE TO THE
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Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1851; at the "INTERNATIONAL EXHIBITION" of 1862 and 1874; in London; at the "IMPERIAL EXPOSITION," held in Paris, in 1855; at the "INTERNATIONAL EXHIBITION," in Dublin, 1865; at the "UNIVERSAL EXPOSITION," in Paris, 1867; at the "GREAT INDUSTRIAL EXHIBITION," at Atlanta, in 1869; TWO MEDALS at the "UNIVERSAL EXHIBITION," Vienna, in 1873; and at the "EXPOSICION NACIONAL ARGENTINA," Cordova, South America, 1872.



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EVERY COIL OF FUSE MANUFACTURED BY them has TWO SEPARATE THREADS PASSING THROUGH THE COLUMN OF GUNPOWDER, and BICKFORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS as THEIR TRADE MARK.

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HON. A. KINNAIRD, M.P., Chairman.
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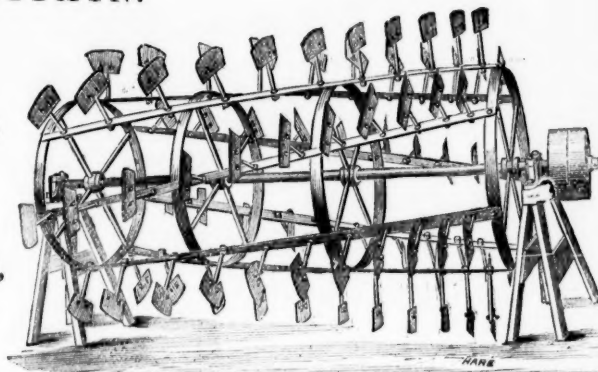
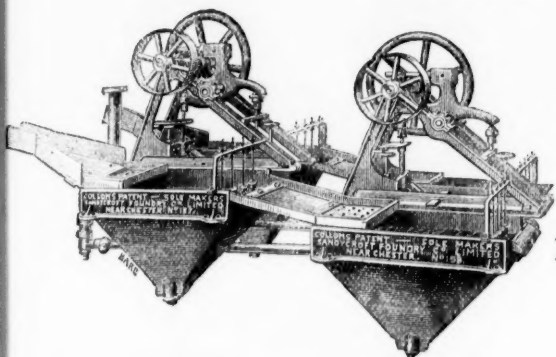
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HUNDREDS IN USE.

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The "Burleigh" Rock Boring Company, Limited,

100, KING STREET, MANCHESTER;

AND 96, NEWGATE STREET, LONDON.

CAUTION.—It having come to the knowledge of the Directors of this Company that certain unscrupulous persons are offering for Sale Rock Boring Machines as improvements on the "Burleigh" invention, and which Machines are Infringements of this Company's Patents, Notice is hereby given to intending Purchasers and Users that this Company will proceed at law against all Infringers of their Patent Rights, whether Makers, Vendors, or Users.

This Company Sell or Let out on Hire their **ROCK BORING MACHINERY**, or they Contract for the Execution of Rock Excavations, such as Shafts and Tunnels, by the aid of the "Burleigh" Rock Boring Machinery.

RICHARD MOTTRAM, Secretary.

EXTRACTS FROM RECENT TESTIMONIALS.

JOHN ROBINSON, Talysarn, near Carnarvon.

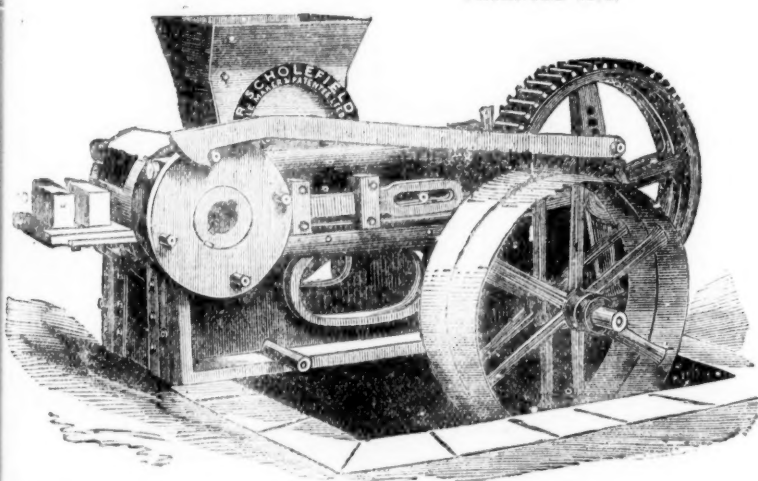
"The 'Burleigh' Rock Drills are working very satisfactorily, and I purpose adopting them throughout all my quarries."

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"The 'Burleigh' Rock Drills have been in active operation for three years in these quarries, and the results obtained by their employment have been of the most satisfactory character, and they are superior to all others."

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PATENTED 1873.



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2 men digging, each 4s. per day	£0 8 0
1 man grinding, 4s. 6d. per day	0 4 6
1 boy taking off bricks from machine, and placing them in barrow ready for the kiln, 2s. per day	0 2 0
1 boy greasing, 1s. 6d. per day	0 1 0
1 engine-man, 5s. per day	0 5 0
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Total cost of making 10,000 pressed bricks £15 0, or 2s. 6d. per 1000.

(SETTING AND BURNING SAME PRICE AS HAND-MADE BRICKS.)

N.B.—Where the material can be used as it comes from the pit, the cost will be reduced in digging. As the above Machinery is particularly adapted for the using up of shale, bind, &c., it will be to the advantage of all Colliery Owners to adopt the use of the said Brick-making Machinery.

THE MACHINES CAN BE SEEN IN OPERATION AT THE WORKS OF THE SOLE MAKER AND PATENTEE DAILY.
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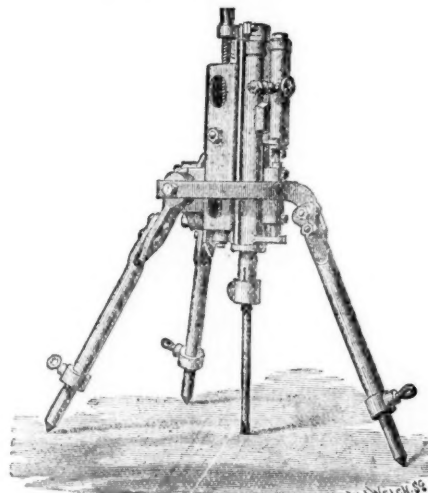
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Crab Winches, Pulley and Snatch Blocks, Screw and Lifting Jacks, Ship Knees, Forgings, and Use Iron of all descriptions.
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Intending purchasers can satisfy themselves that the advantages claimed for the "CHAMPION" over all other Rock Borers are not over-estimated.

For the amount of work it will do, it is the lightest, most compact, most durable, and cheapest in the market.

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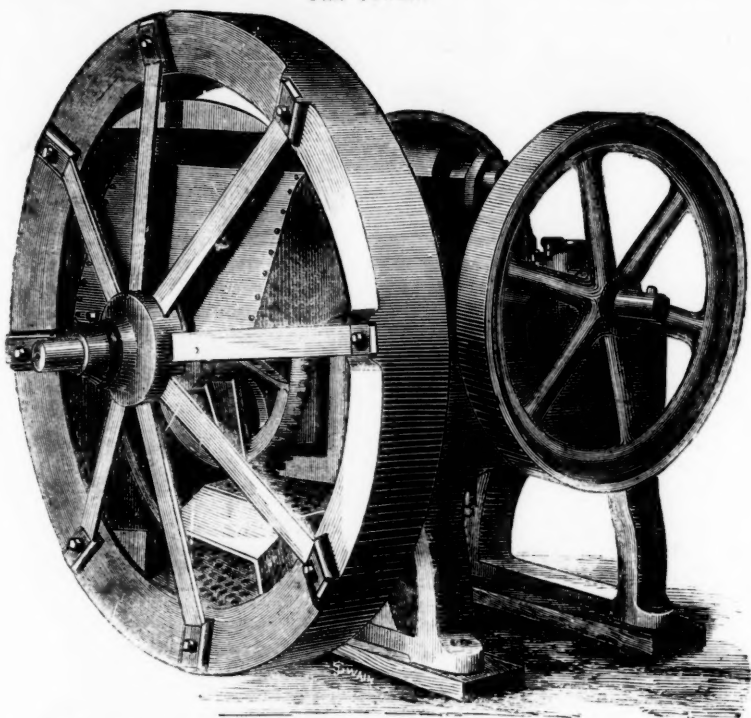
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EXTENSIVELY USED BY
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OVER 1150 NOW IN USE.

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Intending Buyers are cautioned against purchasing any infringements of H. R. M.'s numerous Patents.

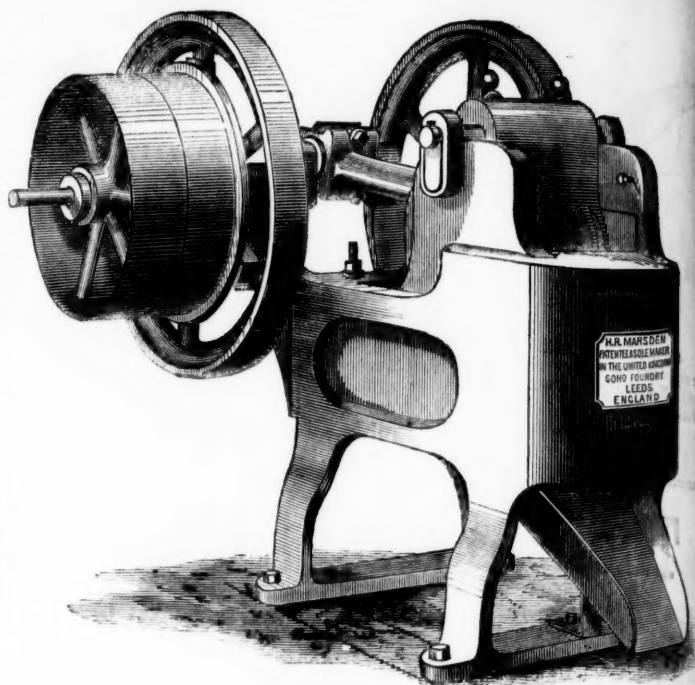
Great Improvements in Mining
Machinery by the use of

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NEW RAFF-WHEEL MACHINE

WITH NEW PATENT CRUSHING JAWS,

BY WHICH ORES OF EVERY DESCRIPTION CAN BE
REDUCED TO FINE POWDER.



FIFTY GOLD AND
SILVER FIRST CLASS
PRIZE MEDALS, in-
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SILVER MEDAL, have
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Stone Breakers.

Machines fitted with
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PATENT CRUSHING
JAWS, by which stone
is broken equal to hand
at ONE-TENTH THE
COST.

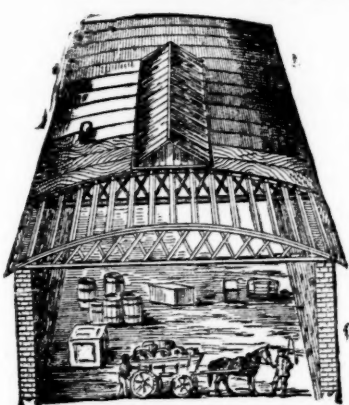
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FOR
GREAT ECONOMY
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CORPORATION STREET,
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The above drawing shows the construction of this cheap and handsome roof, now much used for covering factories, stores, sheds farm buildings, &c., the principal of which are double bow and string girders of best pine timber, sheathed with 1/2 in. boards, supported on the girders by purlins running longitudinally, the whole being covered with patent waterproof roofing felt. These roofs so combine lightness with strength that they can be constructed up to 100 ft. span without centre supports, thus not only affording a clear wide space, but effecting a great saving both in the cost of roof and uprights.

They can be made with or without top-lights, ventilators, &c. Felt roofs of any description executed in accordance with plans. Prices for plain roofs from 30s. to 50s. per square, according to span, size, and situation.

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EXODOROUS FELT for lining damp walls and under floor cloths.

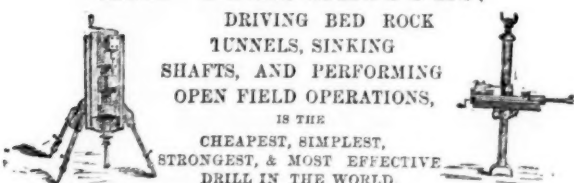
DRY HAIR FELT, for deadening sound and for covering steam pipes, thereby saving 25 per cent. in fuel by preventing the radiation of heat.

PATENT ASPHALTE ROOFING FELT, price 1d. per square foot.

Wholesale buyers and exporters allowed liberal discounts.

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DRIVING BED ROCK
TUNNELS, SINKING
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OPEN FIELD OPERATIONS,
IS THE
CHEAPEST, SIMPLEST,
STRONGEST, & MOST EFFECTIVE
DRILL IN THE WORLD.

OFFICE,—193, GOSWELL ROAD
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By a special method of preparation, this leather is made solid, perfectly close in texture, and impermeable to water; it has, therefore, all the qualifications essential for pump buckets, and is the most durable material of which they can be made. It may be had of all dealers in leather, and of—

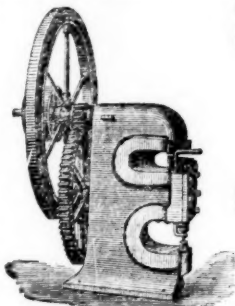
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TANNERS AND CURRIERS, LEATHER MILLBAND AND HOSE PIPE
MANUFACTURERS,
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Prize Medals, 1851, 1855, 1862, for
MILL BANDS, HOSE, AND LEATHER FOR MACHINERY PURPOSES.

COAL-CUTTING MACHINERY.

W. and S. FIRTH undertake to CUT, economically, the hardest
CANNEL, ANTHRACITE, SHALE, or ORDINARY COAL, ANY
DEPTH, UP TO FIVE FEET.

Apply,—

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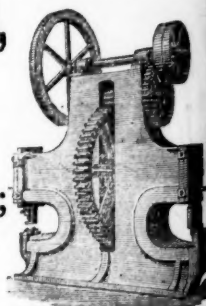
PUNCHING & SHEARING MACHINES,

Suitable for Collieries, Shipbuilders, Boiler Makers,
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Self-acting, Slide, and Screw-cutting
Lathes;

Slotting Machines; Shaping Machines;
Drilling, Planing, and Screwing
Machines;

And Miscellaneous Tools of every kind always in Stock.



J. GOODWORTH, KIRKSTALL ROAD, LEEDS.

Coal-Getting by Patent Hand-Worked Machinery,

WITHOUT THE USE OF GUNPOWDER.

- No. 1 MACHINE - THE HAND COAL-CUTTER, for under-cutting.
2 " - THE ROCK & COAL PERFORATOR, for drilling.
3 " - THE SCREW WEDGE, for breaking down.

The use of these Machines, while doing away with the greatest source of danger, economises at least Fifty per cent. of the labour required in Getting Coal.

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Sole Makers of Stephens's Improved Patent Pulveriser,
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The advantages possessed by these machines over others are—

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- 4.—THE QUANTITY OF STUFF PULVERISED.

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MACHINES MADE SPECIALLY FOR EXPORTATION.

For prices, testimonials, and further particulars, apply to N. H. and Sons, Sole Makers, at the above address, or to our London Agent below.

N.B.—Any person or persons infringing on the patent or manufacture of these machines, or any part thereof, will be prosecuted under the Act.

Estimates given for all classes of Mining Machinery, &c., for home and foreign supply.

ORDERS PROMPTLY ATTENDED TO.

London Agent—Mr. J. COATES, 33, Frederick Street, Gray's Inn Road, London, W.C.